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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Antenatal Care and Maternal Mortality. By Prof. F. J. BROWNE, M.D. 1
The Reactions of the Eye to General Disease. By F. A. WILLIAMSON-NOBLE, F.R.C.S.—(*Illustrated*) ... 4
Treatment of Lobar Pneumonia by Felton's Serum. By JOHN COWAN, M.D., and others.—(*Illustrated*) . 8
The Relationship of Climatic Bubo and Lymphogranuloma Inguinale. By G. M. FINDLAY, M.D. 11
Carotene and Vitamin A. By B. WOOLF, Ph.D., and T. MOORE, D.Sc. 13

CLINICAL AND LABORATORY NOTES

A Case of Acrocephalosyndactylism. By G. G. JOHNSTONE, M.D.—(*Illustrated*) 15
Endoscopic Removal of Foreign Bodies. By E. H. R. ALTOUNYAN, M.D. 16
A Case of Diabetes with Aphonia and Spasmodic Contractions of the Facial Muscles. By ERIC C. SPAAR, M.R.C.P. 16

MEDICAL SOCIETIES

Royal Society of Medicine: Section of Urology.—Survey of Urological Progress 17

REVIEWS AND NOTICES OF BOOKS

Neoplasms of Domesticated Animals. By William H. Feldman, D.V.M., M.S. .. 18
An Introduction to Dermatology. By Sir Norman Walker, F.R.C.P., assisted by G. H. Percival, F.R.C.P. 18
Difficulties of the Evolution Theory. By Douglas Dewar 19
Le pélerinage de la Mecque. By Dr. Duguet..... 19
The Conduct of Life Assurance Examinations. By E. M. Brockbank, F.R.C.P. 19
Clinical Roentgen Pathology of Thoracic Lesions. By Prof. W. H. Meyer, M.D. 19
Modern General Anæsthesia. By James G. Poe, M.D... 20

LEADING ARTICLES

THE MENTAL DEFECTIVE .. 21
UNIVERSITY OF LONDON: THE NEW HOME 21
THE RESULTS OF THYROIDECTOMY FOR GRAVES'S DISEASE 22
EPSOM COLLEGE 23

ANNOTATIONS

Serum Treatment of Pneumonia 24
Observations on Barbiturate Narcosis 24
School Myopia 24
Prognosis of Heart-block .. 25
A Very Young Human Ovum.—(*Illustrated*)..... 25
Arguing from Water to Milk 26
The Sex-ratio in Migraine.. 26
The Comparative Study of Cancer..... 26
Bernhard Bang 27
Health in Factories and Workshops 27
The National Physical Laboratory..... 28

NEW INVENTIONS

Bone Drills. By A. Simpson-Smith, F.R.C.S.—(*Illustrated*) 20

PANEL AND CONTRACT PRACTICE

"Own Arrangers." — The London Panel Committee. —The London Insurance Committee 43

THE SERVICES

Commissions in the Royal Army Medical Corps.—Royal Naval Medical Service.—Royal Air Force..... 44

OBITUARY

Sir Robert Fox-Symons, M.R.C.S. 48

SPECIAL ARTICLES

Sonne Dysentery in an Industrial Town. By JOHN S. MACGILL, M.D., and ALLAN W. DOWNIE, M.D. 29
Sonne Dysentery in a Yorkshire Dale. By W. N. PICKLES, M.D. 31
The University of London: Projected Central Buildings.—(*Illustrated*) 32
What is Wrong with the Medical Curriculum? IV. By Prof. A. E. BOYCOTT, F.R.C.P., F.R.S. 33
Hospital Out-patient Departments: Their Use and Abuse by Panel Patients 35
Medicine and the Law: The Dog in the Car.—Bogus Doctor and Bogus Priest. —Professional Guarantees 36
The Trend of Disease: Registrar-General's Review 38
International Vitamin Standards 39
Epsom College 40
Ireland: The Needs of Irish Hospitals 40
Scotland: Retirement of Dr. Matheson Cullen 41
Bucharest: The Diet of Factory Workers 41
Berlin: Psittacosis in Breslau 42

CORRESPONDENCE

Epsom College and Medical Women (Dr. Raymond Crawfurd) 45
Bronchoscopic Apparatus (Mr. O. Popper)..... 45
Infantile Eczema and Metallic Poisoning (Dr. Leo Spira)..... 46
Streptococcal Septicæmia Complicating Epidemic Influenza (Dr. A. H. G. Burton)..... 46
Pseudo-Mirror-Writing, and Sixteen Personalities (Dr. Alexr. Cannon) 47

PUBLIC HEALTH SERVICES

Mental Hospital Reports.. 48
Infectious Disease in England and Wales 49

PARLIAMENT

Notes on Current Topics: National Health Insurance Bill.—Panel Doctors and Certification.— Health Services in Scotland.—Bills Advanced.—Extradition Bill.—Children and Young Persons Bill..... 49
House of Commons: Unemployed Relief and Free Meals to Necessitous Children.—Children and the Schick Test.—Treatment of Incurable Disease. 51

MEDICAL NEWS

University of Cambridge .. 52
University of London 52
Rockefeller Medical Fellowships 28
Society for Psychical Research..... 52
Royal Medico-Psychological Association..... 52
Acetyldihydrocodeinone .. 52
Royal Sanitary Institute Congress 52
The National Institute of Child Psychology..... 53
Order of St. John of Jerusalem 53
Relics of William Harvey.. 53
Rebuilding of Queen Charlotte's Maternity Hospital 53
New Clinic at Worthing.... 53
Eye Wards at Addenbrooke's Hospital 53
Housing and Juvenile Rheumatism 53
Memorial to Dr. Ethel Bentham 54
Papworth Village Settlement 56

NOTES, COMMENTS, AND ABSTRACTS

A Memory Regained 55
Ether Dropper and Mask .. 55
Group Test for Colour Blindness 55
Ultra-violet Radiators 55
A Theory of the Formation of Animals 56
Infra-red Radiation 56
Happiness is a Matter of Practice 56
A Prescription for Asthma.. 56

Appointments 54
Vacancies 54
Births, Marriages, Deaths.. 54
Medical Diary 56

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ANTENATAL CARE AND MATERNAL MORTALITY

BY F. J. BROWNE, M.D. ABERD., D.SC., F.R.C.S. EDIN., F.C.O.G.

PROFESSOR OF OBSTETRIC MEDICINE IN THE UNIVERSITY OF LONDON; DIRECTOR OF THE OBSTETRIC UNIT, UNIVERSITY COLLEGE HOSPITAL

THE persistence of a high maternal mortality-rate despite the introduction of antenatal care is a matter that obviously demands inquiry. It is now over 30 years since the routine supervision of the expectant mother, normal as well as abnormal, was first advocated by the late Dr. J. W. Ballantyne and since the first antenatal or prematernity bed was provided in the Edinburgh Royal Maternity Hospital. The widespread establishment of antenatal clinics has been one of the most remarkable developments of preventive medicine within recent years. The Minister of Health stated recently in the House of Commons that the number of antenatal clinics in England and Wales is now 1262. Dr. Ballantyne, in his last address, delivered three weeks before his death in January, 1923, to the Nottingham Medico-Chirurgical Society, on the New Midwifery, mentioned the following as the gains that were to be expected from antenatal care:—

1. The removal of anxiety and dread from the minds of expectant, parturient, and puerperal patients.
2. The removal of much discomfort amounting in many cases to suffering.
3. The early and much more satisfactory treatment which can be given to the dangerous complications of pregnancy such as toxæmia, syphilis, or heart disease.
4. The increase in the number of normal labours and of normal pregnancies.
5. The stillbirth-rate will be at once lessened.
6. To use his own words: "One may confidently look for a fall in the maternal death-rate, due to such obstetric complications as sepsis, hæmorrhage, embolism and the like, and to the operative interference which they call for."

I am here concerned solely with the last of these anticipated gains and my object is to inquire why it is that after antenatal care has been a routine part of obstetric practice for over a quarter of a century the high hopes with which it was introduced have not been realised.

Statistics show that the maternal mortality from all causes in England and Wales has not diminished within recent years. The annual report for 1930 of the chief medical officer of the Ministry of Health shows the death-rate for each year from 1911 to 1930. In 1911 the total puerperal mortality was 3·87 per 1000 live births; in 1930 it was 4·40. From puerperal sepsis the death-rate in 1911 was 1·43 per 1000; in 1930 it was 1·92. That the mortality from eclampsia has not declined is shown by a study of the returns of the Registrar-General. In the *Statistical Review* for 1930 we find that the number of deaths from "puerperal albuminuria and convulsions" in the ten-year period 1921 to 1930 was 604 in 1921 and in succeeding years 556, 518, 524, 499, 524, 537, 557, 524, 467 respectively, the last figure being the number of deaths in 1930. It will be seen that the actual *number* of deaths has fallen considerably in 1930 as compared with 1921. In 1921, however, there were 848,814 births; in 1930 only 648,811. If the death-*rate* from eclampsia had remained unchanged in 1930 as compared with 1921 the number of deaths from eclampsia in 1930 would only have been 461. Actually there were as stated above 467. The mortality-rate from eclampsia has therefore, if anything, increased in the last ten years.

In order to get some light on the causes of this persistent high mortality I have examined the only sources of information open to me—viz., the more recent annual reports of certain maternity hospitals. Altogether I have examined 33 reports of nine maternity hospitals all of the highest standing in order to find:—

1. The death-rate and causes of death among *booked* cases—viz., those who had received antenatal care in their own clinics.
2. The frequency of eclampsia among booked cases coming from their own antenatal clinics.

As the best antenatal care available in the country is presumably given in such hospital clinics, we might reasonably expect to get some information not only as to what antenatal care has done but as to the extent to which it has failed and why it has failed.

Antenatal Care in Hospital Practice

Table I. shows the death-rate amongst booked cases in nine large maternity hospitals of the highest standing. It will be seen that the mortality varies very widely. In one hospital it is as high as 14·4 per 1000 of booked cases. I suspect there is some satisfactory explanation of this. Thus it may be that though the cases are all booked, yet a large proportion may have been sent in the first place by practitioners because they were abnormal and that they were then booked by the hospital or admitted for antenatal treatment or booked for confinement because they were abnormal. Some hospitals classify these as "emergency" cases and only classify as "booked" cases those coming from their own district not sent by doctors and not necessarily abnormal. I have reason to believe that this is the explanation in the case of hospital I, and I suspect that it is in H. It is not, I believe, the case in any of the others, and in them the death-rate is fairly satisfactory though much better in some than others which serve the same class of patient. It must be remembered that there is a certain unavoidable death-rate from causes such as rheumatic heart disease associated with pregnancy. This unavoidable death-rate, below which maternal mortality can never be reduced, is probably somewhere about 0·5 per 1000, and in the case of one or two of the hospitals quoted this has been almost reached.

TABLE I.—*Death-rate amongst Booked Cases in Nine Hospitals*

Hospital.	Years.	Booked cases.	Deaths.	Death-rate per 1000.
A	1927–30	8088	23	2·8
B	1928–31	6140	10	1·6
C	1927	2347	6	2·5
D	1927–30	6004	4	0·66
E	1928–29	2002	2	1·0
F	1927–30	7891	29	3·7
G	1927–30	6774	16	2·3
H	1926–29–30	4238	61	14·4
I	1925–27–28–29–30	3442	32	9·3

CAUSES OF DEATH

Interesting information is obtained when we examine the causes of death in detail. In the following list I have classified under suitable headings

173 deaths amongst booked cases in eight of the hospitals.

(*a*) *Easy uncomplicated labour or low forceps:* 35 cases made up as follows: sepsis 22, shock 5, PPH 4, embolism 1, various 3. (N.B.—Sepsis after easy labour accounted for 22 deaths, or 12·7 per cent. of the total 173 booked cases. Antenatal care would as yet do little or nothing to prevent these deaths.)
(*b*) *Complicated labour* (unprevented) 25 (21 deaths avoidable): In so far as these 21 were not prevented antenatal care failed to do what might reasonably have been expected from it.
(*c*) *Toxæmias of late pregnancy* 14 (9 deaths avoidable).
(*d*) *Clean uncomplicated Cæsarean section* 18 (15 deaths avoidable).
(*e*) *Complicated Cæsarean section* 13 (1 death avoidable).
(*f*) *Induction of premature labour* 8 (8 deaths avoidable).
(*g*) *Chloroform poisoning* (delayed) 6 (4 deaths avoidable).
(*h*) *Anæsthetic death* 1 (death avoidable).
(*i*) Shock after normal twin delivery 2 (both deaths avoidable).
(*j*) Ante-partum hæmorrhage 18 (unavoidable).
(*k*) Mitral stenosis, spontaneous delivery 7 (death probably unavoidable).
(*l*) Various 26 (death in all probably unavoidable.)

It will be noted that there were 35 deaths after easy uncomplicated labour or low forceps, the chief cause being sepsis, all of which should be avoidable, while there were five deaths from shock after normal easy labour, all classed as unavoidable, and four from post-partum hæmorrhage. (The classification into avoidable and unavoidable is my own.)

Unprevented but mostly preventable complications of labour was the cause of 25 deaths, 21 of which I have classed as avoidable. These were mostly cases of undiscovered disproportion in which the degree of disproportion had been incorrectly estimated, craniotomy or persistent occipito-posterior positions. Examples are:—

(1) Forceps delivery, difficulty with shoulders, delayed chloroform poisoning.
(2) Low forceps delivery; post-partum hæmorrhage; manual removal of placenta; post-partum hæmorrhage continued.
(3) Obstructed labour; failed forceps; rupture of uterus.
(4) Obstructed labour; forceps; delayed chloroform poisoning.
(5) Disproportion; bougie induction; forceps delivery; manual rotation of occipito-posterior; episiotomy; died shortly after delivery.
(6) Right occipito-posterior; forceps; manual removal of placenta; ruptured uterus.

Although it is impossible to be sure, one has the impression, after reading the details of many of these cases as given in the reports, that all too often these difficult deliveries must have been carried out by junior house surgeons without supervision by those of greater experience. I shall return to this point later.

Toxæmias of late pregnancy accounted for 14 deaths, at least nine of which were, I think, avoidable.

Cæsarean section.—Death occurred in 18 cases of clean uncomplicated Cæsarean section. The chief causes of death were sepsis and shock (15 cases), but such unavoidable causes as ileus, pneumonia, and pulmonary embolism accounted for three. Complicated Cæsarean section accounted for 13 deaths. The most frequent complication was mitral stenosis with congestive failure. All these I have classified as unavoidable with one exception. Other complications were pulmonary tuberculosis and concealed ante-partum hæmorrhage.

Induction of labour accounted for eight deaths, all of which I considered avoidable. They all followed directly on induction, death being due to hæmorrhage, sepsis, or anæsthetic complications.

Induction of labour is usually regarded as a very safe operation and to-day is often somewhat lightly undertaken; but these records show that it is not always safe. In addition to the eight deaths which were directly due to induction, many others followed indirectly; for example, induction by bag or tube for disproportion was followed ultimately by Cæsarean section and death from sepsis.

Delayed chloroform poisoning accounted for six deaths. In most of these the anæsthesia had been prolonged. There is no doubt that chloroform is an anæsthetic that should be used with great caution in pregnancy and labour and only in small quantities and for short periods.

Ante-partum hæmorrhage was the cause of 18 deaths excluding those in which Cæsarean section was done, all of which I have classified as unavoidable, as it is impossible to criticise the treatment carried out from the scanty details given in most reports. Treatment in these conditions is by no means standardised.

Finally, there are 27 deaths attributable to various more or less unavoidable causes, such as tuberculosis, hæmorrhage from gastric or duodenal ulcer, acute inversion, influenzal broncho-pneumonia, and acute novarsenobillon poisoning.

The 173 deaths have been classified into avoidable deaths and unavoidable. The classification is necessarily somewhat arbitrary but I think it may be claimed that it errs on the side of leniency. I have, for example, classed all the ante-partum hæmorrhages, all the deaths from mitral stenosis or incompetence, and all those from shock after normal and twin labour, as unavoidable.

INCIDENCE OF ECLAMPSIA

The second method of attack on the problem is the study of the eclampsia rate amongst booked cases in the same hospitals (Table II.).

TABLE II.—*Incidence of Eclampsia among Booked Cases in Nine Hospitals*

Hospital.	Years.	Booked cases.	Eclampsia.	One case in—
A	1927–30	9804	22	367
B	1928–31	6140	4	1535
C	1927	2347	0	0 in 2347
D	1927–30	6004	0	0 in 6004
E	1928–29	2002	4	500
F	1929–30	4298	10	429
G	1927–30	6774	10	677
H	1926–29–30	4238	31	136
I	1925–27–28–29–30	3442	9	382

Now the incidence of eclampsia throughout the country as a whole is estimated roughly as 1 in 500, so it will be seen that the success of the antenatal departments of these hospitals varies very widely. Hospital D has had no case in 6004 cases, while hospital B had 1 only in every 1535 cases (I am not counting hospital C, since only one year's report was available). All the others, however, are obviously doing very little or nothing at all by antenatal care to prevent eclampsia. In the case of hospital G, I have examined the records of every case of eclampsia occurring in the four years 1927–30. In all except one, which came in the first place from a doctor for consultation and was returned to him for supervision and came in three weeks later with eclampsia, the clinic was, in my opinion, blameworthy in that in some way the supervision was defective. The defects were, I consider, these:

1. Failure to estimate *blood pressure.*—A rise in the systolic and diastolic blood pressure may be the first evidence of pre-eclampsia and often precedes the appearance of albumin in the urine by some days or weeks.

2. Insufficiently frequent *return visits.*—It is I think essential that a patient should be seen at least every month till the 30th week, every fortnight till the 36th week, and every week thereafter until delivery.

3. Insufficient realisation of the *importance of œdema* as a sign of pre-eclampsia.
4. An insufficiently careful *follow-up system* by means of which each patient is written to if she does not return on her assigned date and is personally visited by a nurse if she does not then report.
5. Delay in instituting adequate treatment due to insufficient realisation of the significance of warning pre-eclamptic signs.

I believe that with due attention to these points the incidence of eclampsia would diminish to vanishing point.

Requirements of the Successful Clinic

The proper conduct of an antenatal clinic involves the most careful attention to detail in the examination and supervision of each case with the help of a well-organised follow-up system, by means of which patients are "rounded up" if they fail to return on their assigned dates. In clinics where the medical officers pass through their hands large numbers of cases, perhaps 40 or more, daily—often in premises that are small and overcrowded—it is difficult to avoid sometimes becoming careless in matters of detail. This is surely an argument in favour of the best obtainable and most spacious premises for antenatal clinics and possibly for limiting the numbers of cases seen by any one medical officer in one session. We are too accustomed to judge of the success of an antenatal centre by the number of cases passing through its books yearly. A far better criterion would be the part that it plays in the prevention of maternal mortality. For this reason it is to be hoped that in future a method may be devised whereby such checking of results can be made possible in all cases, including those clinics that are staffed by whole-time medical officers from public health departments. Success in prevention of maternal mortality and morbidity and of stillbirth and neonatal death is to my mind the only criterion of a successful clinic and the only justification for its existence.

Causes of Failure in Antenatal Care

We now proceed to draw some conclusions, from the study of these statistics, as to why antenatal care has not up to the present time appreciably influenced the maternal mortality-rate.

In the first place antenatal care cannot influence to any appreciable extent the frequency of death from post-partum hæmorrhage or shock after easy uncomplicated labour, which accounted for 1 in 5 of the 173 deaths here examined. If there is the same incidence all over the country it means that sepsis, shock, and post-partum hæmorrhage after easy labour account for about 500 deaths in this country yearly out of the total 3000 (there were according to the Registrar-General's Return 2854 deaths in "the puerperal state" in 1930).

Secondly, there is no doubt that the incidence of complicated and obstructed labour from disproportion and similar causes is being diminished. Not only, however, are a good many cases still unprevented, but the discovery of the others through antenatal supervision often leads to interference by induction of premature labour and Cæsarean section. Much of the interference is probably unnecessary and simply constitutes meddlesome midwifery. The statistics I have quoted show that instrumental induction of labour is not an altogether safe operation. It accounted directly for 8 deaths out of 173, or about 1 in 20, even in the best surroundings in well-organised hospitals all staffed by experts. Instrumental induction is frequently carried out in domiciliary practice with probably an equally high or higher death-rate. There is no doubt too that Cæsarean section is often carried out unnecessarily; and how dangerous it can be, even in clean cases in the best surroundings and with expert skill, is shown by the fact that it accounted for 18 deaths out of the 173 cases, or one-tenth of the whole. It does not help a woman very much if she is rescued from the hypothetical consequences of an abnormality and is killed in effecting the rescue; and this is what appears to take place. Women are to a large extent saved from obstructed labour only to run the possibly less, but still considerable, risk incident to induction of labour and Cæsarean section. In other words antenatal supervision in many cases simply transfers mortality from one column to another. It diminishes that due to obstructed labour, and increases that arising from induction of premature labour and from Cæsarean section. To use a homely simile, she is transferred from the frying-pan into the fire, and there can be no doubt that in many cases—possibly a quarter or more of those in which induction or Cæsarean section is carried out—such operations were entirely unnecessary. If the patient had been left alone she would have delivered herself at term by the natural passages. There can be no doubt therefore that antenatal care has led to a great deal of unnecessary interference and meddlesome midwifery.

Thirdly, antenatal care can as yet do little or nothing to prevent such frequent causes of death as ante-partum hæmorrhage, which accounted for one in ten of all the deaths and therefore for about 300 yearly in England and Wales alone. Possibly more might be done by taking note of slight warning hæmorrhages and admitting the patient immediately to hospital where she could be under constant supervision.

Fourthly, there are 23 cases in our series, or one in seven, that antenatal care could not be reasonably expected to prevent. Such are rupture of the aorta in the second stage of labour, which occurred in one of my cases, cancer of the cervix, and influenzal broncho-pneumonia before labour.

Fifthly and finally, I have tried to show that clinics are not doing all they might to prevent eclampsia. Many seem to be doing little or nothing in this respect, if we are to judge from their published reports as to the incidence of eclampsia in the cases which have received antenatal care in their own clinics.

It is necessary, of course, in any attempt such as we are here making, to assess the reasons for the failure of antenatal care to reduce maternal mortality materially, to remember that it is as yet, even after 30 years of propaganda, very limited in its employment. The Maternal Mortality Committee in its interim report published in 1930 states that—

> "Faulty antenatal care was considered to be the primary avoidable factor in 226 of the 626 cases—36 per cent.—in Group 1 (cases showing a 'primary avoidable factor'). In 157 of these cases the doctor or midwife had failed to make any antenatal examination at all or the patient had given them no opportunity to do so. And in 69 others antenatal examination had failed to detect a gross abnormality which must have been present."

It would probably be true to say that not more than half of the pregnant women in this country yet receive any antenatal care and that it cannot be regarded as adequate in more than 10 per cent.

Conclusions

The failure of antenatal care to prevent mortality in those cases who have received it may be explained as follows:

1. It cannot as yet prevent such causes of death as sepsis or post-partum hæmorrhage after normal easy labour.

2. If it has diminished the incidence of complicated labour it has led to an increase of unnecessary interference by the induction of premature labour and Cæsarean section with a fairly high death-rate. It has thus to some extent simply transferred the causes of mortality from one column to another.

3. Very little is being done in the average antenatal clinic to prevent eclampsia. The need for more careful work in this respect is stressed.

4. The high death-rate in hospitals from the minor complications of labour seems to indicate the importance of the principle of the resident senior medical officer. Too often these "minor" operations are left to junior house surgeons with little or no experience who are allowed to carry on without any supervision. House surgeons must, of course, obtain experience, and this they can only do by themselves carrying out obstetrical manipulations. But they should only be allowed to do so under supervision—at any rate in the early months of their incumbency. This experience can best be guaranteed by the appointment, at all the larger maternity hospitals, of some experienced officer with special training who shall be resident, so as to be available at any hour, day or night, and should hold the appointment for a period of three years or more. If this were done we should abolish such happenings, in hospitals at least, as death from rupture of the uterus, hæmorrhage, and shock after manual rotation of a persistent occipito-posterior presentation.

5. I have tried to indicate why and how antenatal care has to a great extent failed to effect all that it might, even in hospitals of the highest repute staffed by specialists. How much more inefficient must it be as carried out by the practitioner harassed by the never-ceasing claims of a busy practice! The interim report which I have already quoted states that the committee in its investigations had "found evidence of a certain amount of inefficient work which has passed under the guise of 'antenatal care.'" They considered that "adequate and satisfactory antenatal care requires as much experience, as much skill, and as much diligence as operative midwifery itself." I believe that the committee has here put its finger upon the answer, in large part, to our question. Much of what passes under the guise of antenatal care is too irregular, too infrequent, too ill-organised and perfunctory to deserve the name, and it can never accomplish anything except to bring preventive midwifery to ill-deserved disrepute.

CHILDREN'S HOSPITALS.—The annual report of the Glasgow Hospital for Sick Children shows that in 1931 there was a large increase in the work. The number of patients treated in the wards of the hospital and the country branch was 6772, an increase of 656, while at 92,186 the out-patients' attendances went up by 4476. All the patients were under 13 years of age. The year closed with a credit balance of £4314, which was, however, rather less than half the previous year's balance. Since 1926 the Children's Tinfoil League has provided £2000 for the endowment of a cot and found, in addition, £125 a year for its maintenance. It is hoped to provide at a cost of £50,000 a completely equipped orthopædic department, and to establish a research endowment fund.—The Cheyne Hospital for Children, at Chelsea, last year admitted 130 new patients, of whom 109 were discharged cured or relieved. This is the largest number on record; the average stay of each patient was reduced from 28½ weeks to 23 weeks. Since only six years ago the average stay was 53 weeks, this is held to show that the number of exceptionally long period cases is gradually decreasing, thanks to the close medical supervision of children exercised by educational and other public authorities. The work was somewhat hampered by intermittent outbreaks of infection, mainly of a slight nature.

THE REACTIONS OF THE EYE TO GENERAL DISEASE*

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Retinal Changes in Anæmia

RETINAL changes in anæmia have a certain importance, because they are interesting and because they receive very inadequate description in the ordinary works of reference. In fact, in one quite large textbook of ophthalmology, published recently, where I expected to find a good description, there was no mention of anæmia at all. The types of anæmia are, of course, many and varied, and it is not by any means possible to say from the fundus picture to which variety a given case belongs, nor to give a safe prognosis. There are, however, certain changes in the retina in this disease, and I propose first of all to discuss these and then to say something about the changes more or less limited to certain types.

In the first place, the word anæmia suggests poverty of the blood, and one would expect as a result of this some impairment of retinal function with consequent diminution of visual powers. Curiously enough, this does not happen, even in extreme degrees of pernicious anæmia,[1] nor after trauma, though it is sometimes found after severe loss of blood, usually from the gastro-intestinal tract or from the uterus.[2] The blindness is associated with subsequent optic atrophy, and though it is a well-known clinical condition it has not yet received a satisfactory explanation. If the cause were mere loss of blood, one would expect it to follow a sudden severe loss, as in traumatic cases, whereas this is not so, the usual prelude being a long-continued gradual loss of blood, with a severe hæmorrhage as the culminating point. A toxic element has been adduced by some authors, the poisoned retina being unable to stand the additional strain imposed by ischæmia. Treacher Collins[3] has correlated the visual loss with gastro-intestinal lesions by pointing out that in these there is immense enlargement of all blood-vessels in the splanchnic area with consequent ischæmia of the ganglion cells of the retina, leading to their necrosis when an additional strain is imposed by further loss of blood. Other authors lay stress on the papillœdema which is sometimes seen in this condition, and argue that it indicates extravasation of fluid in the subdural space of the optic nerve. The fluid exerts pressure on the central retinal vessels as they pass through the space and so causes interference with nutrition of the retina. Be this as it may, there is no doubt about the occurrence of the condition or that anæmia secondary to gastric and uterine hæmorrhages is the only type which can produce blindness, apart from the direct effect of local fundus lesions. It is rather paradoxical that visual disturbances should be common in Vaquez's disease or erythræmia, which is the direct antithesis of anæmia. Here there is an excessive amount both of the blood itself and of its red corpuscles, but loss of vision is probably due to the increased viscosity of the fluid, impeding its proper circulation.

The fundus changes in the anæmias comprise (1) hæmorrhages, some of which show a characteristic

* The third Lettsomian lecture for 1932 delivered before the Medical Society of London on March 16th. Lectures I. and II. appeared in our last two issues.

alteration; (2) changes in the appearances of the vessels and in the colour of the fundus reflex; and (3) œdema.

Normal blood-vessels do not allow the escape of either leucocytes or erythrocytes, and this is true even of such small vessels as the capillaries. Krogh, for example, in his well-known work on the capillaries, cites injection experiments with submicroscopic particles of Indian ink, which never passed through the endothelial walls of capillaries. We must therefore postulate some disease of the vessel wall which allows the capillaries to become pervious to these cellular contents. There is no need to go into this in detail beyond saying that at present there seem to be two schools of thought. One, led by Fischer, says that cells swell up and become hydrophil, so as to form a sort of jelly. The blood-cells find their way through this in much the same manner as a drop of mercury will pass from top to bottom of a piece of soft gelatin without leaving a hole behind it. The other school, headed by Flexner, affirms that it is not the cells but the intercellular cement substance which is affected, so that actual rents are produced in the capillary walls through which the cells can escape. They say that if capillaries from which diapedesis has occurred are stained with silver nitrate, the rents can be seen as dark areas. One has, however—as Sir Frederick Andrewes[1] says—to go further than this. Admitting that a capillary breach occurs, why should it not be promptly healed by clotting? The answer, of course, is that some change has taken place in the blood which interferes with this property. The primary mechanism of ordinary clotting is a running together of platelets. The average number of these per cubic millimetre of normal blood is from 200,000 to 300,000, and if the number falls to 50,000 or lower there is a liability to hæmorrhages. It is known that the platelets almost disappear from the blood in hæmorrhagic purpura, and it is believed that in certain disorders of the blood they are considerably reduced in number. This is particularly the case in pernicious anæmia and acute lymphatic leukæmia, diseases in which retinal hæmorrhages are especially common. These observations will thus furnish an explanation for the occurrence of retinal hæmorrhages in some of the anæmias. First there is a defect in the capillary endothelium which allows the blood-cells to pass through, and, secondly, there is probably a paucity of platelets and thus an absence of clotting.

In the leukæmias, where the blood is overloaded with leucocytes, these cells may aggregate in the centre of a hæmorrhage to form a yellowish-white patch. Histologically, some of the white areas seen in leukæmia are found to consist of leucocytes, but others are varicose nerve-fibres and so-called cytoid bodies. Hæmorrhages may develop in all parts of the retina but are most commonly found in the superficial layers.

The changes in the appearance of the vessels affect their size and colour. It is usual in simple anæmias, even of moderate degree, to find a broadening of both arteries and veins and an abnormal tortuosity. It is tempting to regard this as an endeavour on the part of nature to make quantity do the work of quality—the oxygen-carrying capacity of the blood being diminished, a larger amount of blood is sent to the retina. Ophthalmoscopic examination, however, suggests that the increase in size of the vessels is due to laxity of the walls, probably consequent on their imperfect nutrition.

The more severe the anæmia, the paler are the blood columns and the more transparent they become. Another feature, which is easier to estimate than changes in absolute depth of colour, is that of comparative difference in colour between arteries and veins. The lightening of tint is more marked in the latter than in the former, so that they come to look more nearly alike. Increase in transparency can be seen in the vessels where they lie over the disc and at the arterio-venous crossings. Normally, where an artery crosses a vein, the latter is practically invisible, but in anæmia of any severity the outline of the vein is visible through the artery. A fallacious appearance of optic atrophy is given in some cases by relative pallor of the disc due to paucity in colour of the blood in the small vessels on its surface. In the leukæmic varieties of this disease the veins may be bordered by white lines. This is due to engorgement with lymphocytes of the lymphatics which run in the walls of the veins.

The colour of the fundus reflex may be generally lightened to a yellowish hue, but this is difficult to assess except in marked cases, owing to the physiological variations in colour of the normal fundus. The change is, of course, more marked in the lymphatic and splenomedullary types of disease, where there is a large excess of white cells. Retinal œdema is not much in evidence, though it does occur to a certain degree owing to extravasation of fluid from the vessels which are already pervious enough to allow the escape of blood-cells.

There was an idea at one time of an association between chlorosis and papillœdema. This is interesting because methods of estimating blood volume, though giving contradictory results in most forms of anæmia, have been consistent in showing an increased blood volume in chlorosis. Gordon Holmes,[4] however, states that on following up several cases of this disease he found symptoms of a cerebral tumour or some other cause of raised intracranial pressure which would account for the condition of the optic discs apart altogether from the chlorosis.

It is not, of course, every case of anæmia which shows eye changes, and Leber stated a long time ago that only 20–30 per cent. showed them. A more recent observer gave the figure of 50 per cent. Although this is so, the changes when found are fairly characteristic, and by occurring in that living pathological laboratory, the eye, they give a clue to what may be happening in less accessible parts of the body. This must be my excuse for having taken so much time over one of the comparative rarities of ophthalmology.

The Optic Nerve

The reactions of the optic nerve to disease in other parts of the body are many and varied and could well be made the subject for a future series of Lettsomian lectures. But the diseases in which the optic nerve is involved are nearly all neurological and the involvements are such an integral part of the diseases themselves that they have really become a part of neurology, so that I must trespass to a certain extent on the realms of that specialty.

Localised inflammation of the optic nerve is a relatively rare condition. It may affect the intra-ocular portion of the nerve, when it is designated papillitis; the retro-ocular portion, when it is designated retrobulbar neuritis; or both portions, e.g., when the infection spreads from the brain, as in cases of meningitis.

Papillitis may arise by metastasis in the course of almost any general infection and by local extension in cases of orbital disease. The condition is described in most of the systematic text-books, so I need not go into it further, beyond saying that the most reliable

point in diagnosis is failure of vision. This may sound a trite observation, but it is not really so. Many cases of papillitis bear a very close ophthalmoscopic resemblance to papillœdema, but in the early stages of the latter visual acuity may be scarcely, if at all, affected, whereas in papillitis it is very much reduced. One other point worthy of note is that some cases of papillitis are manifestations of disseminated sclerosis. The plaque happens to occupy the distal end of the optic nerve, so that the inflammatory changes are manifest on ophthalmoscopic examination.

Retrobulbar Neuritis

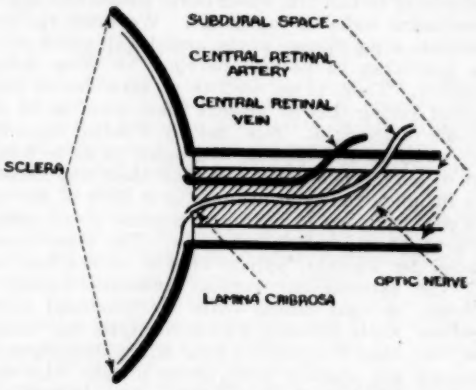
The retrobulbar form of optic neuritis is not so adequately dealt with in the text-books. Its ætiology is still rather a problem, and it is with this that I should like to deal, since the clinical aspects are well known. At one time the majority of these cases were attributed to direct extension from sinus disease, but this does not appear to be so. In a series of 76 cases of retrobulbar neuritis E. D. D. Davis [5] found only 5 in which it was attributable to manifest nasal sinus suppuration, while 14 of the 46 in which a cause could be discovered were due to disseminated sclerosis and 9 to syphilis. Disseminated sclerosis thus seems to be the commonest single cause of retrobulbar neuritis. It is probably commoner than is indicated by Davis's figures, since it may not be until years after the optic nerve involvement that other signs become manifest which would warrant a diagnosis. So that, of the 30 cases in which no cause could be found, it is more than likely that a goodly proportion would turn out to be disseminated sclerosis. Disseminated sclerosis exhibits its well-known tendency to remission in the optic nerves as well as in other parts of the central nervous system and, in consequence, a large proportion of cases of retrobulbar neuritis make an almost perfect recovery.

While on the subject of disseminated sclerosis I should like to mention two features in the reactions of the eye to this disease. The first concerns the degree of apparent optic atrophy which may occur without any marked defect in vision: the discs may sometimes be almost paper-white and yet vision be relatively unaffected. The second concerns nystagmus; the ordinary coarse variety seen in the late stages is well known. There is also, however, another type not so common, perhaps, but appearing earlier and of considerable diagnostic importance. It was first pointed out to me by Mr. Leslie Paton, who designates it "jelly-like nystagmus." It is best seen on ophthalmoscopic examination, when the fundus is found to be constantly undergoing fine shaking movements, just as though the eye were set on top of a jelly. The condition is not absolutely pathognomonic of disseminated sclerosis, since I have seen the same thing in a case of non-paralytic squint, but it is none the less a valuable diagnostic point.

Papillœdema

Papillœdema is a well-known reaction of the eye to disease in other parts of the central nervous system, and I feel that this series of lectures would not be complete without some allusion to it. The pathology of the condition is still a subject of discussion and in some quarters does not seem to be understood, though to my mind a perfectly clear explanation was given by Leslie Paton and Gordon Holmes [6] in 1911. To show the confusion that seems to exist, it is worth while quoting the following sentences from a recent book which shall be nameless . . . "The *sine qua non* of the swollen disc from brain tumour is a distension of the third ventricle, which is so located that it presses on the chiasm from above," and "Choked disc is not a feature of pituitary disease unless there is an added infection . . ." Both these statements are in direct contradiction to Paton and Holmes's theory and are entirely unsubstantiated by clinical findings.

The whole thing can be expressed very shortly with the aid of a diagram (see Figure). The subdural



Diagrammatic section to show central retinal vessels in optic nerve.

space of the optic nerve is normally in connexion with the subdural space of the brain through the optic foramen. If, therefore, there is an increase in the general pressure of the cerebro-spinal fluid, such increase will be transmitted to the subdural space of the nerve unless it is distorted in some way at the optic foramen so as to block the communication. The increase of pressure is not, however, transmitted to the interior of the eye. The effect, so far as the optic disc is concerned, is therefore similar to that on, say, the hand when a Bier's bandage is put round the arm, and œdema must obviously occur.

Two interesting pieces of work have recently been published which lend great support to this theory. The first was by Walter Parker.[7] He trephined one eye in each of 20 dogs and three monkeys, thus reducing the intra-ocular pressure in the operated eye as compared with the other one. When a marked difference of intra-ocular pressure had been established, the intracranial pressure was increased by introducing a laminaria tent between the skull and the brain coverings, in each instance on the side opposite the eye of lesser tension. In nine of the dogs and all the monkeys the conclusions were satisfactory, and papillœdema appeared first in the eye of lesser tension. Various difficulties which I need not detail come in the way of applying these findings to man, but in the main they have been verified.

The second series of experiments was performed by Eugene Wolff and Frances Davies [8] on dogs, cats, and rabbits. They found that it was impossible to produce papillœdema in these animals by injecting fluids into the subarachnoid space of the brain at pressures which were compatible with life. Such a finding would at first seem to controvert entirely the theory I have been bringing forward. But there is an important difference between the main retinal vessels of the animals they used and of the human being. This consists in the fact that in the dog these vessels do not traverse the subarachnoid space of the nerve but leave the latter on a plane anterior to this space. The vessels are not therefore subjected to the extra pressure exerted by the cerebro-spinal fluid and, inasmuch as the lymphatics travel for the most part in the walls of the veins, there is no blockage to the passage from the nerve either of blood or of lymph, and so no œdema. The observations of Wolff and Davies therefore furnish an admirable control experiment and give further justification to the mechanical theory. One wishes, however, that these observers could find an animal, say a monkey, in which the retinal vascular arrangement is the same as in man, and repeat their experiments and see whether papillœdema were produced.

Whether the œdema is due principally to blockage of the lymphatics or of the vein does not seem to

matter very much, but probably the lymphatic element predominates, since the œdema takes so long to subside after reduction of intracranial pressure. The presence of hæmorrhages and also the occurrence of a mild grade of papillœdema in cases of thrombosis of the cavernous sinus seem to indicate the importance of the vascular element. The œdema due to this cause does not as a rule last long, because the anastomotic channels connecting the ophthalmic vein with the pterygoid plexus and other venous channels are soon opened up. Levinsohn [9] favours this theory and in a recent article states as one of his conclusions that in papillœdema the point at which the fluid oozing from the anterior part of the optic nerve is blocked is in the vaginal space of the optic nerve within the perivascular lymph spaces of the central vessels.

A detailed description of the disc changes in papillœdema would be out of place, but there are one or two points I should like to emphasise. First, the important feature, from the diagnostic standpoint, is swelling of the disc. This can be measured with the ophthalmoscope lenses, and he would be a bold man who would diagnose papillœdema in its absence. So-called pseudo-papillœdema is a well-known ophthalmoscopic condition which occurs usually in the eyes of high hypermetropes, owing probably to crowding together of the nerve-fibres. The effect is to produce a blurred edge to the disc and, in marked cases, a dioptre or so of apparent swelling. The second point refers to blockage of the communication between the subdural spaces of the optic nerve and the brain, which may be brought about by a tumour in the neighbourhood of the optic foramen. In cases of this sort—some pituitary and frontal lobe tumours, also those affecting the third ventricle—it is usual to see a descending pressure atrophy of the disc on one side with papillœdema on the other, if the nerve of this side has escaped distortion. The third point is that papillœdema has no localising value apart from the exception mentioned above. In a paper by Leslie Paton [10] based on 200 cases, there were 30 in which papillœdema developed while the patients were under observation. In 13 of these it appeared simultaneously in the two eyes; in 11 it developed first in the eye of the side opposite to the tumour; and in 6 on the same side as the tumour. The height of the swelling of the disc does not afford any clue to the side of the tumour. Out of 102 cases, there were 54 with equal swelling in the two eyes, and the swelling was greater on the side opposite the tumour in 23 cases and on the side of the tumour in 25.

Papillœdema has been found in 80 per cent. of all cases of cerebral tumour where these could be followed up to the time of death or operation. Of the 20 per cent. showing no disc changes, Paton's figures show that the majority were tumours of the pons or of the centrum ovale. No purely pontine growth ever showed papillœdema but, if the neoplasm should extend so as to involve the cerebellum, very marked disc changes ensued with a high grade of œdema and often a macular fan. The presence of this fan figure is an indication of a papillœdema of rapid onset, and it is thus more frequently seen in sub- than in supra-tentorial growths, though I have seen it occasionally in the latter type.

Why papillœdema should be almost invariably associated with tumours of one part of the brain and not with those in other parts is a little difficult to understand. It is worthy of note, as Paton has remarked, that the vessels of the pons and centrum ovale are small terminal branches and that these are the sites where tumours do not produce papillœdema. Conceivably, if only the small terminal vessels are obstructed, there will not be much interference with the general cerebral circulation, whereas if larger vessels are involved, as in the cerebellum, the circulation is embarrassed, the cerebro-spinal fluid pressure is increased, and papillœdema results. The question, however, is obviously the same as the larger one relating to the rise of intracranial pressure in general, which is outside my province.

Optic Atrophy

It may seem rather pessimistic to end these lectures with some remarks about optic atrophy, but this condition may be taken to represent one of the last reactions of the eye to general disease and so comes suitably at the end. The appearances of the disc in this condition are well known, and do not need much description, but I should like to mention two pitfalls:—

1. The first concerns the differences in colour which may occur physiologically in the disc. The temporal side is normally somewhat paler than the nasal, and the bottom of the physiological cup, where the lamina cribrosa lies exposed, is quite definitely white. I have seen many cases where an erroneous diagnosis of pallor of the temporal side of the disc has been made, owing to ignorance of this difference, and many where optic atrophy has been diagnosed because there happened to be a fairly large physiological cup exposing the lamina cribosa. A fair degree of pallor is also not uncommon in myopia, apart altogether from any pathological interference with the nerve.

2. The second pitfall concerns the method of examination. If one looks at any disc through a small pupil with an electric ophthalmoscope, particularly if equipped with a new lamp and battery, it may look pathologically pale. My own practice in a doubtful case is not to express any opinion until I have had the opportunity of examining the disc through a dilated pupil with a reflecting ophthalmoscope and a yellowish source of light, such as is provided by a carbon filament lamp. Even then I like to know something about the fields and the corrected visual acuity before saying very much. In doubtful cases it is also a great help to compare the discs of the two eyes.

With these preliminaries I should like now to discuss the classification and causes of optic atrophy. Leslie Paton has rightly emphasised [10] the large number of the latter, and the futility of attempting to divide them into only two classes, primary and secondary. The optic nerve is a fairly long tract of the brain, and it may be attacked by many and various diseases in different parts of its course, and the attack may occur in different ways. Thus it may affect primarily the nerve-fibres or their cells (an example of the former is disseminated sclerosis or syphilitic myelitis, and of the latter, tobacco blindness), or these structures may be involved secondarily as the result of pressure, of infections of the meninges and interstitial tissues, of trauma, or of failure in blood-supply. Pressure itself may cause atrophy in several different ways. Thus glaucoma presses the nerve-fibres in the optic disc against the sharp edge of the cup; pressure in the subdural space of the nerve causes papillœdema with possible resultant atrophy; pressure at the apex of the orbit or in the optic foramen by a gumma or a neoplasm, or by bony hypertrophy as in Paget's disease, again causes atrophy, and the same is true

within the skull, where pressure can be exerted by various means, such as new growths, cicatrisation of the meninges, pressure of sclerosed vessels, and aneurysms.

It appears, therefore, that there are two classifications available, one teleological and the other regional. Of the two, the latter is the more generally useful, though in its application it of course includes the former, each case being considered in its relation to the different parts of the nerve. Over and above this, there is the group of optic atrophies due to diffuse affection of the whole nerve, and those produced by diseases such as tabes or disseminated sclerosis, which in one patient may affect one portion of the optic nerve and in another patient quite a different portion. Thus field changes suggestive of a chiasmal lesion are not unknown in tabes, though usually the lesion is more distal. I do not propose to go into the matter in more detail, since an excellent account is given in the paper [10] to which I have already alluded, but perhaps enough has been said to show that optic atrophy is a fairly complicated subject which cannot be divided merely into two classes, primary and secondary.

I began the first lecture with a quotation from Seneca, and I should like to end the last with one from Robert Louis Stevenson: "All speech, written or spoken, is a dead language, until it finds a willing and prepared hearer."

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TREATMENT OF LOBAR PNEUMONIA BY FELTON'S SERUM *

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FOR the last two years we have had at our disposal a supply of Felton's serum,† which we have used at our discretion. We have already reported the results obtained in the first 58 cases observed (THE LANCET, 1930, ii., 1387). Our present report is based upon a series of 155 cases.

It is extremely difficult to estimate correctly the value of any mode of treatment in any disease, and the difficulty is especially great in the case of the infections. As is well known, these diseases vary in their virulence in different years, scarlet fever and small-pox, for example, having a considerable mortality when the senior members of the team were serving in fever hospitals, whereas at the present time their mortality is inconsiderable (Table I.). The mortality in the same disease varies in different places at the same period; and varies, too, according to the sex, the age, and the constitution of the individual patients. In the case of pneumonia at the present time the difficulties are particularly great, for although we know that there are many types of pneumococci, of varying virulence, we do not know their incidence in past years. Accurate comparisons of current results and those of past years is thus impossible. This report is based upon the facts observed in Glasgow during 1930–31–32.

TABLE I.—*Case-mortality of Small-pox and Scarlet Fever in Glasgow*

Small-pox			*Scarlet Fever*	
Year.	Cases.	Mortality per cent.	Year.	Mortality per cent.
1893	386	7	1891–95	6·0
1895	244	9	1896–1900	4·8
1900	401	10	1901–05	4·1
1901	1383	14	1906–10	3·3
1902	458	9	1911–15	3·6
1903	290	9	1916–20	2·4
1904	878	8	1921–25	2·0
1920	542	20	1926–30	1·2
			1931	1·0

Note.—There has been no small-pox in Glasgow since 1920, although 15 cases were introduced into the city in 1929 from a ship.

During the period February, 1930–April, 1932, we have treated a series of 155 cases of lobar pneumonia, of whom 22 have died, a mortality of 14·1 per cent. During the years 1906–29 we treated, in the Royal Infirmary, 856 cases of pneumonia, of whom 158 died, a mortality of 18·4 per cent. The death-rate in our practice is thus slightly reduced, and our report is an attempt to determine the part which Felton's serum has played in the reduction.

The Present Series of Cases

Serum-treated cases: typed, 132; not typed, 5.
No serum given: typed, 14; not typed, 4.

The virulence of the present epidemics of pneumonia does not seem to be below the average of the past few years. The average mortality of the patients suffering from this disease in the Royal, Victoria, and Western Infirmaries of Glasgow during the years 1920–31 (3761 cases) was 22 per cent., the yearly extremes being 18 per cent. and 26 per cent. In 1930 it was 24 per cent., and in 1931 26 per cent.

Sex-incidence.—There is little difference in the sex-incidence in the older and the present series. In the first the males comprised 73 per cent. of the patients; in our present series of 132 typed cases, treated with serum, 67 per cent.

TABLE II.—*Case-mortality (per cent.) of Influenzal and Primary Pneumonia in Glasgow Corporation Hospitals during 1931 (3191 Cases: 580, 18 per cent., Deaths)*

Age.	Male.	Female.	Age.	Male.	Female.
–1	33·3	28·7	–15	4·8	2·8
–2	23·6	24·6	–25	5·9	4·5
–3	15·2	14·5	–35	21·5	16·2
–4	5·0	11·7	–45	29·5	27·4
–5	6·7	2·5	45+	42·6	35·2
–10	4·9	5·8			

Age-incidence.—The mortality of pneumonia varies according to the age of the patient. It is great in infancy; 35 of 75 children under the age of 3 years, suffering from pneumonia, died in the Royal Hospital for Sick Children during the year April, 1931–April, 1932. The rate falls rapidly thereafter, and is minimal in the 'teens. It rises considerably in the 'thirties, and steadily increases with increasing years. In our older series the mortality under 20 years of age was 3·9 per cent.; between 20 and 39, 15·2 per cent.; between 40 and 59, 43·4 per cent.; and over 60 years, 56·8

* The expenses of this mass test have been borne by a grant from the Scottish branch of the British Red Cross Society to the Royal Infirmary for the purposes of this investigation.

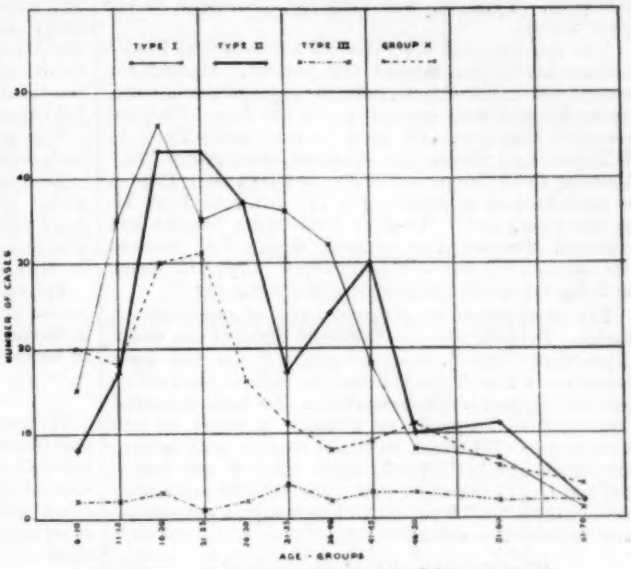
† The bulk of the serum was manufactured by the Lederle Antitoxin Laboratories; we have also used a Type I. serum kindly presented to us by Dr. R. A. O'Brien, of the Wellcome Physiological Research Laboratories.

per cent. A comparable mortality is seen in the "pneumonias" treated in our corporation hospitals (Table II.).

The age-incidence in our two series is not dissimilar. In our earlier series the patients under 20 years of age numbered 38 per cent. of the series; between 20 and 39, 37 per cent.; between 40 and 59, 17 per cent.; and over 60, 5 per cent. The corresponding figures in the typed series of 132 cases treated with serum are 14, 57, 24, 4 per cent. On the whole the patients in the later series are the older, and the expected mortality would be higher.

The constitution of the patients in this series has been, in our opinion, average. They were not a picked group. Four showed a positive Wassermann reaction; six were chronic alcoholics; one was addicted to "bad habits." Two patients suffered from chronic bronchitis; two from bronchiectasis; one patient had aortic valvular disease; one auricular fibrillation; extrasystoles were noted in two cases. Four patients had otitis media; one rheumatoid arthritis; one splenic anæmia; one suffered from malnutrition.

FIG. 2



Age-incidence of pneumococcal types in lobar pneumonia.

The virulence of the attacks seemed to be of at least average severity. The fever lasted for eight days or more in 37 cases, and touched or exceeded 103° F. in 91 cases. The pulse-rate touched, or exceeded, 120 per minute in 93 cases. The respirations numbered 40 or more in 75 cases. The blood pressure fell below 100 mm. Hg in 35 cases.

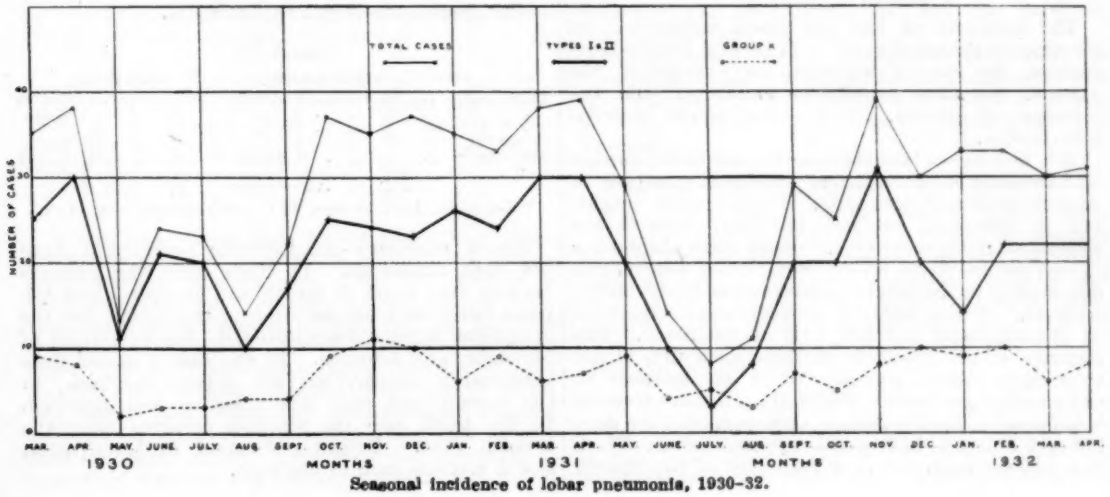
So far as we can judge, there has not been any abatement of the severity of the pneumonia prevalent in Glasgow during the past two years. The sex- and age-incidence, and the constitution of the patients, in our two series are not dissimilar.

Bacteriology of the present epidemics.‡—The records of the types of pneumococci prevalent in Glasgow before 1930 are scanty. Since February, 1930, we have typed the pneumococci from 737 cases of lobar pneumonia. Of these 37·6 per cent. were Type I.; 34·6 per cent. Type II.; 4·2 per cent. Type III.; and 23·6 per cent. group "x." *Nearly three-quarters of the cases were Types I. and II.*

The seasonal incidence of pneumonia shows a definite curve, the cases being more numerous in the winter months and less numerous in summer. Fig. 1 shows that this is mainly due to a rise in the number of Types I. and II. cases in the winter and a fall in summer. Group "x" pneumonias are relatively constant throughout the year. The winter epidemics of pneumonia are thus mainly due to infection by the types of pneumococci which it is claimed are influenced by the administration of antipneumococcic serum. There has been a slight variation in the incidence of Types I. and II. from year to year. In the period February–August, 1930, the incidence of Types I., II., III., group "x," was 32, 45, 2, 19 per cent. In the period September, 1930–August, 1931, 37, 32, 5, 24 per cent. In the

‡ Part of the expenses incurred in this portion of the investigation have been defrayed by the Medical Research Council.

FIG. 1


TOTAL CASES
TYPES I & II
GROUP X
NUMBER OF CASES
MAR. APR. MAY. JUNE. JULY. AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY. JUNE. JULY. AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR.
1930
MONTHS
1931
MONTHS
1932

Seasonal incidence of lobar pneumonia, 1930–32.

period September, 1931–April, 1932, 42, 29, 4, 24 per cent. Type II. was thus less prevalent in the past winter.

The incidence of the types of pneumococci is also influenced by the age of the patient. During the period April, 1931–April, 1932, 51 cases of pneumonia, under 3 years of age, were typed in the Royal Hospital for Sick Children. Of these only 2 were Type I., 1 Type II., 1 Type III., while 47 were group "x." Turning to the larger series Fig. 2 shows that Type I. is predominant in adolescence (11–20), and Type II. in the young adult (16–30); both types become less common after 40 years of age. Group "x" follows the same curve, but at a lower level. Type III. seems to have no special affinity for any age.

The virulence of the different types of pneumococci varies. Investigations in different parts of the world show that Type I. and group "x" are the least dangerous; that Type III. has the highest mortality; and that Type II. is intermediate. We have collected from various hospitals in Glasgow a series of 589 cases (ages 6–70) which were not treated with serum. The mortality in Type I. cases was 10 per cent.; in Type II., 17 per cent.; in Type III., 29 per cent.; and in group "x," 9 per cent. The Glasgow experience thus follows the common rule.

The Treatment of Pneumonia

In our previous paper we have already discussed in some detail the general lines of treatment in pneumonia. Death may ensue from cardiac failure, anoxæmia, intoxications, or complications.

From the *cardiac side* the chief objective is rest; for the patient and for his heart. Full nursing is essential, and sleep must be secured, if necessary, by hypnotics or sedatives. In the early stages morphia is invaluable. Cardiac stimulants are generally required at some stage of the illness, digitalis, caffeine, theobromine, and pituitrin all being useful. The food must be fluid, but as ample as possible. Diluted milk, readily digestible carbohydrate (Horlick, Mellin, &c.), sugar or glucose form the staple diet.

The occurrence of cyanosis, in any degree, is a clear indication of the presence of *anoxæmia* which develops, to some extent, in every case of pneumonia. We have therefore administered oxygen freely, by Haldane's mask, the nasal tube, or in a tent, to all cases in which the slightest suggestions of cyanosis were apparent, and have continued its exhibition until the illness was ended.

THE INTOXICATIONS

The products of the disordered metabolism of pneumonia probably arise from several inter-related sources, the specific toxæmia, the changes in the affected lung, the consequent anoxæmia, and the processes of defence. It is not a simple bacterial intoxication.

It is well known that the urine in cases of pneumonia is habitually acid from an increased excretion of organic acids and acid salts. The ammonia output, too, is increased, but not noticeably outwith the general catabolic increment. Indeed these phenomena in part are due to the effects of starvation—starvation due mainly to the catabolic destruction of the body's reserves. There may be proportionate reductions in the combined and free CO_2 of the blood. The capacity of the blood to combine with CO_2 is not appreciably below normal. So if our methods of examination are correct, and if Hasselbalch's formula holds good in such a disease as pneumonia, the data indicate a normal hydrogen-ion concentration. There is a general tendency to a reduction of the plasma chloride, the serum calcium, and the serum sodium; and an increment in the levels of non-protein nitrogen, urea, serum sulphate, and serum potassium. These deviations are probably due to changes in the tissue fluids, and to the autolytic processes. But similar conditions are found in other febrile states, and following trauma.

The prompt removal of the products of disordered metabolism is clearly indicated, and we have endeavoured to ensure this by the administration of water in amount, and the exhibition of moderate doses of potassium citrate and liquor ammonii acetatis. The bowels are kept active, and excretion by the skin encouraged by frequent sponging.

Felton's serum can only affect the specific pneumococcic poisons, and the general treatment indicated in the preceding paragraphs is still as urgently required as before the introduction of serum therapy.

THE ADMINISTRATION OF SERUM

If the administration of serum is to have its maximum effect it must be given at the earliest possible moment, so as to prevent the further elaboration of pneumococcic poisons. In this series treatment was commenced within 48 hours of the onset of symptoms in 38 cases, of whom 2 died; on the third or fourth day of the disease in 35 cases, of whom 4 died; and subsequently in 15 cases, of whom 3 died.

Improvements in technique now permit the identification of the type of pneumococcus in a large number of cases within four to six hours of the receipt of sputum by the laboratory, but the delay is too great for practical purposes. Nearly three-fourths of our patients have been infected by Type I. or II., and we have, in consequence, administered serum to every patient admitted with pneumonia as soon as a sample of blood has been withdrawn for culture; and we have repeated the dose until it was shown that Type III. or group "x" was the infective agent. In cases due to Types I. or II. we have, as a rule, given the serum every eight hours until the fever fell below 102° F., but we have not followed this rule strictly, giving more or less frequent doses according to the general condition of the patient rather than according to the height of the fever. The signs of toxæmia, exhaustion, delirium, incontinence, &c., are more dependable criteria. Our average dose has been 3·6 ampoules per patient, the extremes being 1 and 26 doses. The latter patient recovered!

Our results are shown in Table III.

TABLE III

	Serum cases.		No serum.	
Type I.	44 cases	2 deaths	5 cases	no deaths
" II.	45 "	8 "	2 "	1 death
" III.	6 "	5 "	—	—
Group "x"	37 "	4 "	7 "	1 death
Not typed	5 "	1 death	4 "	no deaths
	137 "	20 deaths	18 "	2 "

Total cases, 155; deaths, 22; mortality per cent., 14·1.

Serum reactions.—Anaphylactic phenomena have not been numerous. In three cases the patients became very short of breath and cyanosed, and the pulse failed on administration of the serum, but the symptoms rapidly disappeared on the exhibition of adrenalin and atropine. In one case a second dose produced a similar, but less severe, reaction. In the second case only one injection was required. In the third case the reaction occurred after the seventh dose. Urticaria occurred in three cases, and a macular rash in one case.

Late reactions occurred in nine patients; arthritis in six; urticaria, a macular rash, and inguinal adenitis in individual cases. In the latter case all the injections had been made in the arms.

Discussion

Our total series numbers 155 cases. Serum was given to 137 patients, five of whom could not be typed; of these 20 died. It was not given to 18 patients, four of whom could not be typed; of these two died. The mortality of the whole group is 14·1 per cent. The case-mortality by ages is shown in Table IV. The mortality of lobar pneumonia in

TABLE IV.—*Case-mortality in Serum-treated Cases*

—	Male.								Female.							
	I.		II.		III.		"x."		I.		II.		III.		"x."	
0–09 ..	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–
10–19 ..	1	–	7	1	–	–	3	–	1	–	2	–	–	–	1	–
20–29 ..	8	–	10	–	1	–	7	1	5	–	4	–	–	–	6	–
30–39 ..	12	1	5	1	–	–	8	–	3	–	3	–	1	1	2	1
40–49 ..	2	–	6	4	2	2	4	1	2	–	3	–	1	1	2	–
50–59 ..	3	1	3	2	1	1	–	–	1	–	1	–	–	–	1	–
60–69 ..	1	–	1	–	–	–	–	–	2	–	–	–	–	–	2	1
—	30	2	32	8	4	3	23	2	14	–	13	–	2	2	14	2

Glasgow during 1930–31–32, expressed in "percentages," was as follows:—

	Cases.	Type— I.	II.	III.	Group "x."	Total.
No serum: all ages ..	589 ..	10 ..	17 ..	29 ..	9 ..	14
Serum: " " ..	132 ..	4 ..	17 ..	83 ..	10 ..	14

The series is still too small for any accurate conclusion as to the value of the treatment to be reached. But if we contrast the mortality of the cases treated by us with serum and that of the larger contemporary series treated without serum it seems clear that the mortality of Type I. infections, treated with serum, has been reduced by more than half. The mortality of Type II. infections has been little if at all affected. It is well known that Type II. is more virulent than Type I., gauged either by clinical experience or laboratory experiment. At first we gave to Type II. cases doses of serum in amounts equal to those given to Type I. cases. Recently we have given twice the amount, but we cannot yet compare our results. The mortality of cases with positive blood cultures is higher than that of those with negative blood cultures, but this does not explain the relative failure of serum in Type II. cases, for Type I. shows a similar incidence of positive blood cultures. (Table V.)

TABLE V.—*Results of Blood Culture*

	Positive blood cultures.		*Negative blood cultures.*	
Type I. ..	14 cases..	2 deaths	27 cases..	0 deaths
" II. ..	14 " ..	5 "	30 " ..	3 "
" III. ..	3 " ..	3 "	3 " ..	2 "
Group "x" ..	7 " ..	4 "	30 " ..	0 "
	38 " ..	14 "	90 " ..	5 "

It has been stated that the use of serum shortens the febrile period of the disease, lessens the toxæmia, and prevents complications. We are inclined to believe that the use of serum in certain Type I. cases may shorten the febrile period, but we have no evidence that serum lessens toxæmia, prevents complications, or hastens resolution. We have all seen miracles occur in pneumonia before the days of serum. We have seen three-day pneumonias, two-day pneumonias, and—if one typical rusty spit in conjunction with general symptoms be accepted as conclusive evidence—a one-day pneumonia.

On the facts before us we consider that serum, and oxygen, should be available for the treatment of pneumonia in every hospital.

We have to offer our sincere thanks to the medical officers of health, the staffs of the corporation hospitals, and the staffs of the Royal Hospital for Sick Children, the Royal, Victoria, and Western Infirmaries for their kindly coöperation and assistance in this investigation.

THE RELATIONSHIP OF CLIMATIC BUBO AND LYMPHO-GRANULOMA INGUINALE

BY G. M. FINDLAY, O.B.E., D.Sc., M.D. EDIN.

(*From the Wellcome Bureau of Scientific Research, London*)

IN the middle of last century Chassaignac [1] in France described a form of adenitis which was later shown by Velpeau [2] and others to be distinct from the adenitis resulting from syphilis, tuberculosis, or septic infection. In 1890, Nélaton,[3] who discussed the pathology of this condition, termed it "l'adénite subaiguë simple de l'aine à foyers purulents intra-ganglionnaires." Since then this disease has been described in almost all European countries and has aroused considerable interest, more especially in France, where in 1913 Durand, Nicolas, and Favre [4] first reported the occurrence of an initial herpetiform lesion, later called by Bory [5] the lymphogranulomatous chancre. The condition now generally referred to in this country as "climatic bubo" appears to have been first described in 1879 by Bodnár,[6] and later by Ruber,[7] who both believed that the adenitis was a malarial manifestation, while in 1896 Ruge [8] reported the occurrence of a small epidemic of the disease on board German men-of-war anchored off Zanzibar. The close similarity of the clinical symptoms and pathological changes of climatic bubo to those found in lymphogranuloma inguinale has suggested the possibility that the two conditions are identical, an identity which has been maintained by Phylactos [9] and others. With the discovery by Hellerström and Wassén [10] in 1930 that lymphogranuloma inguinale is due to a filtrable virus with neurotropic properties, it has become possible to determine definitely the relationship of climatic bubo to lymphogranuloma inguinale.

In the present preliminary communication evidence is brought forward to show that on ætiological and immunological grounds no distinction can be drawn between climatic bubo and lymphogranuloma inguinale.

Transmission of Climatic Bubo to Animals

Pus or gland tissue from six cases of climatic bubo has been available. Of these six cases, one appears to have contracted the disease in London, the others were infected in Singapore, Calcutta, Bombay, and other ports in the tropics. Bacteriologically sterile material from human buboes has been injected intracerebrally into monkeys and mice and into the groins of guinea-pigs.

MONKEYS

The following species of monkey have been found to be susceptible: the green monkey, *Cercopithecus callitrichus*; the sooty Mangabey, *Cercocebus fuliginosus*; the brown capuchin, *Cebus fatuellus*; the common marmoset,

Callithrix jacchus and *Callithrix penicillata*. The common rhesus monkey, *Sinicus rhesus* (=*Macacus rhesus*), is less susceptible, and of eight rhesus monkeys inoculated intracerebrally only one has died from the infection. One strain of virus (Singapore) is now in its eighth passage through monkeys. Death has occurred in from 5 to 16 days. One cercopithecus, after exhibiting severe symptoms, recovered and was immune to a second inoculation.

The *symptoms* in monkeys are variable. As a rule the first signs of illness consist of weakness and loss of appetite. The weakness is most pronounced in the legs, the monkeys clinging with their hands to the bars of the cage. Gradually the asthenia progresses, alternating frequently with epileptiform convulsions which come on sometimes as the result of some external stimulus, sometimes without any apparent predisposing cause. Muscular contractions, opisthotonos, and grinding of the teeth are all common. The pupils are frequently dilated, sometimes unequally; incoördination of the eye muscles is by no means rare. Finally the monkeys pass into a semi-comatose condition, which ends in death. Fever is present as a rule, the temperature rising irregularly to between 103°–104° F., until a little time before death, when the temperature becomes subnormal.

Blood changes have also been noticed: as a rule there is some degree of leucocytosis, associated with an increase in the number of large mononuclear cells. Histologically the changes are those of a meningo-encephalo-myelitis, with special involvement of the meninges. In the acute stage the predominant inflammatory cell is the polymorphonuclear leucocyte, in the more chronic stage the lymphocyte, plasma cell, and large mononuclear leucocyte. In many of the mononuclear cells there is very extensive vacuolisation of the cytoplasm, which may contain small masses of basophilic material. The brain tissue is also involved; round many of the blood-vessels there is a varying degree of round-celled infiltration.

These changes closely resemble those described by Hellerström and Wassen,[10] and by Levaditi, Ravaut, Lépine, and Schoen[11] as occurring in monkeys injected intracerebrally with the virus of lymphogranuloma inguinale.

While cultures made from the brains and other organs of monkeys inoculated intracerebrally with climatic bubo have invariably remained bacteriologically sterile, it has been possible to show that the virus does not remain localised to the central nervous system, but is present in the liver, spleen, kidneys, inguinal lymph glands, and to a less extent in the blood.

MICE

Mice have been infected by the intracerebral inoculation of pus from human climatic buboes and of the brains and other tissues from infected monkeys. Characteristic symptoms develop in from 5 to 70 days after inoculation.

The mice become weak and emaciated, with staring coat. In some mice the back legs are placed far apart, the back is hunched, and the animal turns slowly round in circles, using its hind legs as a pivot. In other mice the body and head are flattened on the ground, and the animal progresses slowly with an almost snake-like movement. Definite pareses of the limbs are not uncommon, as are opisthotonos and sudden epileptiform convulsions. Sometimes when stimulated a mouse may make a series of incoördinated kangaroo leaps which terminate in a tonic contracture of all the muscles of the body. Death may occur quite suddenly during such tonic contractions. Post mortem there are no characteristic appearances, except that some mice which have survived for 30 or more days exhibit a collapsed appearance of the cerebral lobes, which appear as if they had been deflated.

As in the case of monkeys the virus does not remain in the central nervous system, but passes into the blood and other organs. The virus may be passaged in series either by brain, liver, kidney, or spleen. One strain has now been transferred for ten mouse passages. In one mouse which developed a spontaneous breast tumour after inoculation, the tumour tissue was found to contain the virus.

Mice may also be infected by intraperitoneal inoculation and by simultaneous injury to the brain by substances such as sterile broth. Mice thus inoculated have always died with the characteristic nervous symptoms. After intraperitoneal inoculation of the virus, without injury to the brain, death has not occurred, but mice killed 58 days after inoculation were found to contain living virus in the blood, liver, spleen, kidneys, and brain.

From the mouse the virus has been retransferred to the monkey by intracerebral inoculation.

Histologically there is, as in the monkey, involvement of the brain and meninges. In the brain there is well-marked perivascular infiltration and large areas of inflammatory change, more especially in the mid-brain. The inflammatory cells consist of lymphocytes, large mononuclear leucocytes, plasma cells, and occasional polymorphonuclear leucocytes.

The results here recorded agree very closely with those obtained by Levaditi, Ravaut, and Schoen,[12] who found that the virus of lymphogranuloma inguinale is transmissible to mice.

GUINEA-PIGS

Although the intracerebral inoculation of pus from human climatic buboes and of infected mouse brains has failed to produce any infection, it has been possible to infect guinea-pigs by injection in the groin with gland material from three cases of human climatic bubo.

In each case the material inoculated has been bacteriologically sterile, and the inoculation has been made within an hour of removal from the patient. Swellings have appeared in the groin two to five days after inoculation, and have remained for about 15 days, after which they tend to disappear spontaneously.

The buboes, which involve the inguinal lymph glands, consist of epithelioid cells, small collections of polymorphonuclear leucocytes, and occasional giant cells. One strain has been transmitted for five passages in the lymph glands of guinea-pigs.

Although the majority of workers have failed to transfer climatic bubo to the lymph glands of guinea-pigs, occasional success has been obtained with lymphogranuloma inguinale by Ravaut, Boulin, and Rabeau[13] in France, Gay Prieto[14] in Spain, and more recently by Meyer, Rosenfeld, and Anders[15] in Germany. Up to the present attempts to infect rats, rabbits, and field voles, *Microtus agrestis*, with the virus of climatic bubo either by intracerebral inoculation or by injection into the groin have failed.

Properties of the Virus of Climatic Bubo

The filtrability of the virus of climatic bubo was determined experimentally in monkeys and mice. A capuchin monkey inoculated intracerebrally with an L_3 filtrate of infected monkey brain developed nervous symptoms on the eighth day after injection and was killed on the tenth day when moribund. The histological changes present in the brain were those characteristic of climatic bubo, while the brain was infective for mice. An emulsion of infected mouse brain in broth at pH 7·2 was filtered through an L_3 candle, and 0·05 c.cm. of the filtrate was inoculated intracerebrally into five mice which died with characteristic symptoms in 14, 23, 51, and 54 days respectively. Brain material from these mice was infective for other mice.

Infected mouse brain preserved in 50 per cent. glycerin in saline and kept at a temperature of + 4° C. was virulent after 7 but not after 14 days.

Unlike many neurotropic viruses the concentration of climatic bubo virus in infected mouse brain does not appear to be very great, as dilutions greater than 1 in 1000 failed to kill, although histological examination of the brains of mice injected with a dilution of 1 in 100 gave evidence of a slight degree of infection.

IMMUNOLOGICAL EXPERIMENTS

Levaditi, Ravaut, and Schoen[12] have found that the serum of patients suffering from lymphogranuloma

inguinale is possessed of protective properties, since the intracerebral inoculation of a mixture of virus and immune serum into mice fails to give rise to infection. Similar experiments have been carried out with the sera of six patients suffering from climatic bubo, using as a control normal human serum and serum from secondary syphilitics.

Mixtures of equal parts of serum and of an emulsion of infected mouse brain diluted 1 in 5 in physiological saline were kept for an hour at 37° C., and overnight in the ice chest at +4° C. Mice were then inoculated intracerbrally with 0·05 c.cm. of the mixture. Mice inoculated with sera from cases of climatic bubo survived, their brains were non-infective on passage, and were normal histologically. Control mice succumbed with the usual nervous symptoms. Serum from the cercopithecus monkey which recovered from the infection also possessed protective properties.

A similar experiment has been carried out with sera from four cases of lymphogranuloma inguinale occurring in Paris. These sera were sent to me through the kindness of Dr. F. Coutelen by Prof. Paul Chevallier, of the Faculté de Médicine, Paris, to whose generosity I am deeply indebted. These four sera all possessed protective properties for climatic bubo virus (Singapore strain).

Discussion

The evidence here brought forward shows that the climatic bubo of tropical climates is due to a filtrable virus. This virus is infective for mice, monkeys, and, on occasion, for guinea-pigs. There is thus a striking similarity between the infectivity of climatic bubo and lymphogranuloma inguinale for animals. The histological changes produced by the two conditions are also closely similar, as are the physical properties of the viruses. Finally, serum from cases of lymphogranuloma inguinale is possessed of protective antibodies against the virus of climatic bubo.

These facts, together with the clinical symptoms and histological changes which will be described in a further communication, render it almost certain that climatic bubo is identical with lymphogranuloma inguinale. If such be the case, the term "climatic bubo" is hardly applicable to the disease for the assumption that it is associated with tropical or subtropical climates only is no longer tenable. The term "lymphogranuloma inguinale," although not entirely free from criticism, might well be applied to cases of climatic bubo.

One curious point in the geographical distribution of lymphogranuloma inguinale may here be noted—its extreme rarity in this country. Very few autochthonous cases have been described, and then only in large seaports such as London or Bristol. Yet lymphogranuloma inguinale is by no means rare in France, Germany, and Scandinavia, while cases have also been described in Spain and Italy. The absence of the disease cannot be attributed to racial or natural immunity such as is apparently possessed to some degree by rhesus monkeys, for, as Gibson [16] has recently pointed out, lymphogranuloma inguinale is extremely common on the China Station, where 1 per cent. of the naval personnel is said to suffer from the disease.

Conclusions.—Climatic bubo is due to a filtrable virus. The virus when inoculated intracerebrally produces in monkeys and mice a meningo-encephalomyelitis; inoculated into the groin of guinea-pigs it may give rise to a bubo. The serum of patients suffering from climatic bubo possesses protective properties; the serum of patients suffering from lymphogranuloma from Paris also possesses protective properties for the virus of climatic bubo. Evidence is brought forward that climatic bubo and lymphogranuloma inguinale are one and the same condition.

My sincere thanks are due to Dr. H. M. Hanschell, hon. medical superintendent of the Seamen's Hospital, Royal Albert Docks; to the medical staff of the Tropical Diseases Hospital, Dr. G. Carmichael Low, Dr. P. H. Manson-Bahr, and Dr. Hamilton Fairley for their generosity in placing at my disposal the material for this investigation: as well as to Mr. H. N. Walters, of the Royal Albert Dock Hospital, and Mr. Bromfield, of the Tropical Diseases Hospital.

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CAROTENE AND VITAMIN A

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and

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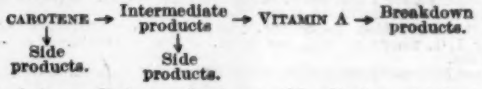
In view of the claim of Olcott and McCann [1] and the hopes held out by Bowden and Snow [2] that they have effected the transformation of carotene to vitamin A in vitro, it is important to define the criteria of a successful transformation. The relevant properties of carotene and vitamin A, so far as they are known, are summarised in the accompanying Table.

So far the in-vitro work has produced quite small quantities of mixtures of unchanged carotene and an unknown number of transformation products, one of which may be vitamin A. Since satisfactory methods of separating such a mixture have not yet been worked out, chemical identification is at present impracticable, while there are great difficulties in applying the other tests. The possible types of change undergone by carotene may be summarised thus:—



The intermediate products would all show biological activity and the $SbCl_3$ reaction, while in the later stages the 328 mμ band might be developed. Although it is perhaps improbable that the breakdown products of the vitamin would retain either the $SbCl_3$ reaction or the 328 mμ band, side products might have biological activity or simulate some of the spectroscopic properties of the vitamin. Thus, to take only one example, the artificial reduction product "dihydrocarotene," [12] the biological activity of which

is doubtful,[13] resembles the vitamin in the faintness of its visible colour and in its strong 328 mμ band, although it differs decidedly in the bands shown in the SbCl reaction. As a further complication, the biological test, in one sense the most fundamental, is of such low accuracy that even a small proportion of residual carotene is enough to cast doubt on the validity of a positive result. In spite of these difficulties, however, it is improbable that a mixture not containing the vitamin would exhibit simultaneously all its properties in their correct quantitative relationships. A strong case for the production of the vitamin would therefore be made out provided it were shown: (1) That the carotene colour was markedly diminished. (2) That the biological activity was definitely greater than that due to the unchanged carotene, as measured by the residual yellow colour. (3) That the 328 mμ absorption band was present, in an intensity corresponding to the biological activity. (4) That the $SbCl_3$ reaction was obtained, with absorption at 620 mμ, in an intensity corresponding to the biological activity. (5) That the conditions were not incompatible with the formation from the hydrocarbon, carotene, of an alcohol of lower molecular weight.

Table showing Relevant Properties of Carotene and Vitamin A

—	CAROTENE.	VITAMIN A.
Molecular weight.	536	330[8] (diffusion method) 286[4 5] or 312[4] (from provisional formulæ).
Formula.	$C_{40}H_{56}$	$C_{19}H_{30}O$[4 5] or $C_{20}H_{32}O$.[4]
Chemical nature.	Unsaturated hydrocarbon.	Unsaturated alcohol.
Physical properties.	Crystalline solid, M.P. c. 180°.	Viscid oil.[4 5]
Solubilities.	Insol. in water, and methyl and ethyl-alcohols. Sparingly sol. in ether. Sol. in chloroform.	Insol. in water. Sol. in all organic solvents, including methyl-alcohol.
Biological properties.	Vitamin A activity. Rat minimal day dose = 2γ.[6]	Vitamin A activity. Rat minimal day dose = 0·5γ[6]; 0·1γ.[5]
Colour.	Intensely yellow. 2000 Lovibond yellow units per mg.[7] (*Y = 2000.)	Colourless. (Y* = 0.)
Spectrum.	*In cyclohexane*[9 10]:—Band system with maxima at 482 and 451 mμ. E* = 200, ε* = 107,000. Band at 273 mμ. E = 40, ε = 21,000. *In chloroform*[9 10]:—Band system with main maximum at 462 mμ. E = 140–190, ε = 75,000[12]–100,000.[9] Band at 280 mμ. E = 35, ε = 19,000.[9]	Band at 328mμ. E* = 133,[4] ε* = 40,000.
$SbCl_3$ reaction ("Carr-Price" test").	Blue colour, fading rapidly. 200–300 Lovibond blue units per mg.[7] (B* = 200–300.) Band at 590–600 mμ.	Blue colour fading rapidly. 3000–4000 Lovibond blue units per mg.[5 7] (B* = 3000–4000.) Band at 620 mμ.
Ratio of $\frac{Y^*}{B^*}$	10	0

* Almost every worker has his own system of units. The values of Y, B, and E in this table are all calculated for solutions containing 1 mg. per c.cm.[7]

Y = Yellow value, is determined by diluting until the reading in the Rosenheim-Schuster tintometer is about 5, and calculating for the standard concentration.

B = Blue value. The sample is diluted with chloroform until 0·5 c.cm., +2 c.cm. of a 30 per cent. solution of $SbCl_3$ in chloroform, gives a tintometer reading of about 5. The value is then calculated for 1 mg. per c.cm. in the total volume of the reaction mixture after addition of the $SbCl_3$ reagent.

E = Extinction coefficient, given by the expression Ecd = log I_0/I, where c = mg. per c.cm. and d is thickness of layer in cm.

ε = Molecular extinction coefficient = E × molecular weight.

When the work of Olcott and McCann is examined in the light of the above considerations it is clear that much more evidence is needed before their claim to have produced the vitamin can be regarded as a strong one. We wish to emphasise that there seems to be no evidence directly against their claim to have succeeded, where other workers have failed, in effecting the biological change with tissue preparations, nor do we question their experimental results, some of which we have repeated. We consider it unfortunate, however, that a claim of such importance should be based upon inadequate evidence, so that at present the verdict can only be "not proven."

It will be recalled that the American workers dissolved carotene in ethyl laurate, and incubated it for 24 hours with minced A-free liver tissue in phosphate buffer. After digestion with potash, the mixture was extracted with ether, the residue after removal of the ether being dissolved in chloroform and examined spectroscopically. An absorption band was observed at 328 mμ. This band, together with the qualitative observation that there was a decrease of yellow colour, was taken as sufficient evidence for the formation of the vitamin, no attempt being made to examine the biological activity or the $SbCl_3$ reaction. Moreover, in experiments of our own, in which the original technique has been closely followed, circumstances have arisen which require further elucidation. In the first place, the yellow colour may sometimes fall rapidly when carotene is incubated in simple ethyl laurate solution, so that control experiments in which the liver tissue is omitted are obviously necessary. Furthermore, Olcott and McCann state that although the chloroform solution of the reaction products has a perceptible yellow colour, it gives no trace of the carotene spectrum. We have confirmed this observation, but we find that the pigment is so photosensitive in chloroform solution that the amount of radiation absorbed during the photographing of the spectrum is often sufficient to cause the complete bleaching of solutions which appear quite strongly yellow when first placed in the spectrometer cell. Vitamin A in chloroform solution is also particularly rapidly destroyed by ultra-violet light, so this effect might cause grave errors in the assessment both of the amount of carotene destroyed and of any vitamin A produced by the enzyme system. We propose to repeat the spectroscopic observations using a more inert solvent such as cyclohexane.

The results of Bowden and Snow also call at present for reserve of judgment. They give a figure showing the production of a band at about 328 mμ, as the result of treating carotene dissolved in cyclohexane, in an atmosphere of nitrogen, with monochromatic radiation of wave-length 265 mμ. Their spectroscopic data are still only qualitative, but it is clear from their photographs that much of the carotene remained unchanged. In view of this, the positive $SbCl_3$ reaction can be of little significance until the intensity is shown to be greater than that due to the residual carotene, and evidence of a 620 mμ absorption band is obtained. Moreover, with a material obtained by a process so unlike that occurring in vivo, biological experiments are even more than usually necessary, but it seems inevitable that animal tests must be very uncertain until a product

can be obtained with a lower proportion of unchanged carotene. Furthermore, it is difficult to see how an alcoholic group could have been introduced under the conditions adopted. If vitamin A has indeed been produced, it can only have been with the coöperation of traces of oxygen or water present as impurities. Any colourless product definitely proved to possess biological activity, however, would be of very great interest even if it were not identical with vitamin A.

Finally we may mention some preliminary experiments of our own on the changes undergone by carotene under various conditions, which may serve to show the complexity of the subject and the care needed in the interpretation of results. Under a variety of conditions carotene can be decolorised without the $SbCl_3$ value falling to anything like a commensurate extent. For instance, carotene in ethyl laurate solution was incubated aerobically for three days. The yellow colour fell to 30 per cent., but the $SbCl_3$ value only decreased from 300 to 250 blue units per mg. Even more striking results have been obtained by the irradiation of carotene. It is already known that when carotene in chloroform solution is irradiated by the quartz mercury lamp, the yellow colour and $SbCl_3$ reaction are quickly discharged.[14] We have noticed, however, that the $SbCl_3$ value shows a rapid preliminary rise, often amounting to 60 per cent. or more, before commencing to fall. The new colourless substance, or substances, appear to absorb at about 350 mμ. The use of a glass or quinine sulphate screen seems to delay the destruction of the new substance more than that of the original carotene. We hope to investigate the reaction more fully, and to apply biological tests to the chromogen. Meanwhile it is clear that an increase in the intensity of the $SbCl_3$ reaction, like any other single test, is by itself no evidence of the formation of vitamin A.

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CLINICAL AND LABORATORY NOTES

A CASE OF ACROCEPHALO-SYNDACTYLISM

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Acrocephalo-syndactylism is an uncommon disorder to which more attention has been paid of late.

A boy, now 5 years old, was brought to the local infant welfare centre at the age of about three weeks. In appearance he was almost repulsive, with a large hydrocephalic head, large eyes, small body, and complete syndactyly of hands and feet, with the exception of the thumbs. For months his cry could easily be distinguished amongst the other 40 or more children attending the welfare centre by its explosiveness, its monotony, its utter purposelessness.

His father and mother, both healthy people, married in 1912 in their twenties, the father being 13 months older than the mother. There is no relevant family history. Their children arrived thus: 1915, girl; 1917, boy; 1919, boy; all normal children, alive and in good health. 1927, the present case. There have never been any miscarriages and nothing suggestive of venereal diseases.

The child is said to have been a transverse presentation but was born without grave difficulty after correction. Apart from much pain in the back during the last six months there was no particular abnormality during pregnancy, but there was no antenatal treatment or advice.

The child unexpectedly continued to thrive and his mental progress, though slow, has been continuous. He learnt to walk at about 2 years and began to say words at 4½ years. His head is large, the circumference is 19¾ inches. There is some exophthalmos. Since birth his left eye has turned outwards, but recently there has been some attempt to use both eyes together. He is fat, almost adipose. His mouth is large and he has never learned to control his saliva, which continues to pour out over his chin, especially when he is excited or interested. His legs show much bowing, although he was breast-fed at first and later was given cod-liver oil.

His four fingers are fused together (Fig. 1); the nail of each little finger is separate but the other three nails are continuous. The thumbs are separate, short and thick, and the distal joint is bent inwards at about 45°. His toes hardly exist (Fig. 2). There seems to be practically no separation of the digits, and the nails of all the toes, including the hallux, are continuous across the

FIG. 1 FIG. 2

Radiograms of hand (Fig. 1) and foot (Fig. 2).

end of the foot, with flexible joints due to thin areas.

Mentally the boy is greatly below average. He is affectionate and rather timid, but when roused or annoyed he has a bad temper and throws things at people. He can feed himself and is clean in his habits, though much handicapped by his deformities. Probably, if he lives, he will rank as a high-grade imbecile.

Dr. J. J. Butterworth, county medical officer, has kindly given permission for the publication of this case.

ENDOSCOPIC REMOVAL OF FOREIGN BODIES

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Foreign body in the pleural cavity.—Foreign bodies in the pleural cavity are rare; fortunately they are still more rare in such circumstances as the following.

In the course of treatment of a right-sided empyema by the closed intubation method, as described by R. B. Bettman,[1] it was found one morning that six inches of a No. 9 rubber catheter had disappeared within the pleura—an accident due to an unperceived fault in the rubber. Under avertin rectal anæsthesia, aided by novocain infiltration, the intubation track was followed up by a small incision through the superficial tissue, and a thoracoscope was introduced into the pleural cavity. A little air was admitted to ensure an adequate collapse, and the broken piece of catheter was localised without difficulty as it lay on the dome of the diaphragm. The thoracoscope was withdrawn and through the same opening a 7 mm. Haslinger bronchoscope was gently introduced; the catheter was again found and was withdrawn. This method appears to me to be the simplest way of dealing with the situation.

Leaf removed from the bronchus.—A girl, aged 8, was admitted to hospital suffering from intense laryngeal dyspnœa. Eight days previously she had been playing with some other children, holding a leaf between her teeth. A sudden laugh followed by an inspiration had made her choke; since then her condition had become progressively worse, and several attempts by other practitioners to relieve her had failed. The parents were positive that she had swallowed a leaf or, to be exact, half a leaf, and actually had the intelligence to bring with them a branch from the same tree. It proved to be the mountain oak (*Quercus coccifera*).

The child was pale and breathing with great difficulty; there was indrawing of the lower ribs and the fever was high. Radioscopy showed a dark shadow in the right main bronchus ascribed to secretion. A Haslinger 7 mm. bronchoscope was introduced and, after evacuation of much pus by means of the aspirator, the half leaf was removed in two pieces from the opening of the right middle-lobe bronchus. The leaf was firmly attached by one of the spicules to the mucous membrane. The bronchus as a whole was not inflamed, but there was much subglottic œdema and trauma. The convalescence was uneventful and rapid, although it was found necessary to insert a tracheotomy tube for a few days.

It is very rare indeed to find a leaf so far down the respiratory tract, for such foreign bodies, especially if they are armed with spikes, are usually held up in the pharynx. In this case it is evident that the leaf must have originally been stopped in the subglottic area, and then been helped down by attempts at removal.

Sheep's ear impacted in the œsophagus.—A woman, aged 30, while enjoying a feast of a sheep's head with some of her neighbours, was suddenly observed to choke, and found that she could eat no more. On admission to the hospital it was found that she was able to speak with difficulty and was quite unable to swallow her saliva. The œsophagoscope was passed, and at the third attempt a large portion of a sheep's ear, still containing some hair, was removed from the retrolaryngeal space. So tight was the impaction that the noise of removal resembled that made by drawing a cork.

[1] Surg., Gyn., and Obst., January, 1932, p. 39.

A CASE OF DIABETES

WITH APHONIA AND SPASMODIC CONTRACTIONS OF THE FACIAL MUSCLES

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A Sinhalese, male aged 48 years, was admitted to the General Hospital, Colombo, under my care on August 18th, 1931. He was a well-built and rather corpulent middle-aged man, conscious but drowsy, with frequent spasms of the facial muscles on the right side, and aphonia of one day's duration. Twitching of the right upper and lower extremities was speak also apt to occur occasionally. The inability to had been preceded by a dysarthria for five days.

His previous health had been good, so far as he was aware, excepting for some itchiness of the skin experienced during the last three years, and a certain amount of thirst and polyuria of three months' duration.

Examination.—No paralysis of the limbs could be detected, but a slight weakness of the facial muscles on the right side was noticeable. The pupils reacted normally to both light and accommodation. The thoracic and abdominal organs revealed no signs of disease. The Wassermann test was negative both in blood and cerebro-spinal fluid, although the fluid withdrawn by lumbar puncture was slightly under pressure. The urine was acid, with a specific gravity of 1030, and contained 10 per cent. of sugar, a trace of albumin, and acetone bodies. Microscopical examination of the centrifugalised deposit revealed the presence of a few leucocytes, a large number of epithelial cells from the bladder, and two or three hyaline and granular casts, and the specific gravity of the two-hourly specimens was: 1030, 1028, 1028, 1028, 1026, 1028, 1028. There was thus a definite fixation.

The urea-concentration test gave the following result:—

	Amount of urine (oz.).	Urea concentration (per cent.).
Before urea	8	1·4
One hour after	9	1·7
Two hours „	4	2·0
Three „ „	4	2·4

On admission the patient was given 40 units of insulin subcutaneously, and an enema was prescribed. On the following morning I put him on a diet of 82 g. of protein, 83 g. of carbohydrate, and 60 g. of fat, with a caloric value of 1200, and prescribed 30 units of insulin daily, in a dosage of 20 and 10 units, to be injected half an hour before the midday and the evening meal respectively.

On August 21st the urine contained 1 per cent. of sugar, and acetone was still present, but there was no diacetic acid. The facial spasms continued to be frequent both by day and by night, and numbered from 20 to 25 in the 24 hours. The patient was fully conscious and able to articulate, though his speech was indistinct.

On August 23rd the urinary sugar was 2·1 per cent., and acetone was still present. The spasms, however, were

less frequent. On August 25th a glucose-tolerance test was done:—

Blood-sugar.	Per cent.	Urinary sugar.
Fasting	0·21	No urine passed.
Half an hour after ..	0·27	,, ,, ,,
One and a half hours after	0·30	3·1 per cent.
Two hours later ..	0·28	No urine.

On August 27th the urinary sugar was 2·1 per cent. There had been only seven spasms in 24 hours.

August 29th: the urinary sugar was 1·8 per cent., and acetone was still present. Three facial spasms had occurred on the preceding day. He was now put on 20 units of insulin twice a day.

August 30th: the urine was sugar-free, but acetone was still present. No facial spasms had occurred, and articulation was normal.

On Sept. 2nd the blood-sugar, estimated three hours after his morning meal, was 0·23 per cent.

Sept. 4th: the urinary sugar was 1·25 per cent., and no acetone was present. It was feared that the patient was surreptitiously obtaining carbohydrate food from other patients in the ward, and he was warned against doing so.

Sept. 6th: sugar was absent from every one of the specimens collected two-hourly. Convalescence was uninterrupted thereafter.

Sept. 10th: the fasting blood-sugar was 0·086.

Sept. 17th: discharged from hospital.

It is customary nowadays to give larger quantities of carbohydrate to a diabetic, and it is interesting to note how the very high blood-sugar at the beginning sank to a normal level in spite of such a diet.

Although neuritis of the spinal nerves is well known in diabetes, there is no record in the literature of neuritis of the cranial nerves other than the second. The facial spasms and the twitching of the extremities must therefore be considered as due to cortical, or rather subcortical, irritation above the nucleus of the facial nerve. Such irritative phenomena are recognised as occurring in alcoholism, and therefore there is strong ground for considering them to be the explanation in this case. It might be objected that the real cause was a threatening uræmia, but there were no cardiovascular changes, and the urea-concentration test showed that the kidneys were functioning quite efficiently.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF UROLOGY

A MEETING of this section was held on June 23rd, when Sir JOHN THOMSON-WALKER gave a

Survey of Urological Progress

during the last 40 years. He said that urology had mainly depended for its advance upon the cystoscope. This instrument, invented by Nitze in 1887, was made possible by the perfection of the electric bulb by Swan and Edison. For its introduction into England and into English surgery Mr. Hurry Fenwick was mainly responsible. The second discovery which revolutionised urology was that of Rontgen. Sir John himself could remember the first demonstration of a stone in the kidney by John McIntyre of the Edinburgh Royal Infirmary in 1896, and its subsequent removal by nephrolithotomy. The third milestone in urological progress was elaboration of tests of renal function. Applied at first to both kidneys, such tests were used by Albarran and Guyon in 1902 as a means of comparing the efficiency of one kidney with that of the other. Urologists of to-day, equipped with modern methods, might find it difficult to appreciate the anxieties experienced by their predecessors. In pre-cystoscope days exploratory operations were required for the diagnosis of bladder conditions. In the case of a male this consisted of exploring the bladder with the finger through a small suprapubic incision; in that of a female of introducing the finger through the dilated urethra. This urethral dilatation was not infrequently followed by permanent incontinence, and left the patient in a very miserable state. Sir John reviewed certain common urological conditions and their treatment:—

Urinary Infections.—The introduction of mercurochrome, administered intravenously by H. H. Young of Baltimore, marked a definite advance, he said, in the treatment of urinary infections, though the claim that this drug did not damage the renal epithelium had not been entirely substantiated. In chronic pyelitis and urinary infections secondary to septicæmia, intravenous mercurochrome gave little benefit, but where septicæmia had originated in the urinary tract itself good results often followed the injections.

The pathology of *tuberculous infections* had been the subject of great controversy. Most modern urologists regarded renal tuberculosis as a unilateral disease in its early stages, but some pathologists held primary bilateral infection to be the rule rather than the exception. If this were true, renal tuberculosis must often heal spontaneously, since clinically it was not common to find both kidneys infected in the early stages of the disease. He himself could recall only one case in which a healed tuberculous focus had been discovered in a kidney, excluding cases of closed tuberculosis where a kidney had been entirely destroyed and then encapsulated. Possibly there existed a mild type of miliary tuberculosis that infected a kidney and subsequently healed, but spontaneous cure of the commoner type of infection occurred very seldom.

Bladder Growths.—One of the chief difficulties in dealing with bladder growths, even papillomata, was their tendency to recur. Formerly when growths were removed somewhat blindly, a small papilloma might easily be overlooked, but to-day this should rarely happen. Much could be done to prevent implantation by swabbing out the bladder at the end of the operation with 4 per cent. silver nitrate. Little was known about the cause of papillomata; workers in aniline dyes were particularly liable to suffer from them, but only a few cases could be thus explained. Careful chemical analysis of the urine of patients suffering from papilloma should be made in order to discover whether the urine contained any abnormal irritating substances. The prognosis for malignant growths of the bladder was less satisfactory. Statistics showed that many were inoperable when first seen. Better results would be obtained only when practitioners as a whole realised the importance of early cystoscopy.

Urinary Obstruction.—While cases of urinary obstruction due to enlargement of the prostate had increased in number in recent years, those following stricture had diminished, probably owing to the better treatment of gonorrhœa and to earlier diagnosis and more effective methods of dealing with stricture. Though deep X ray therapy might cause amelioration

of the symptoms due to prostatic obstruction, the benefit obtained was temporary, and was not associated with any diminution in the size of the prostate. Deep X ray therapy had a very definite place, however, in the treatment of carcinoma of the prostate. He was not optimistic on the subject of transurethral excision of the prostate. Recently a very able surgeon had said that it was only necessary to remove the portion of the gland that projected into the bladder by means of diathermy for the re-establishment of micturition. The same statement had been made many years ago by McGill, and it was upon this basis that his operation of partial prostatectomy had been established. But McGill's incomplete operation gave very poor results, and Sir John himself felt that if we were to throw away the experience of the last 40 years and go back to methods involving partial removal, only about 20 per cent. of our cases would be cured.

Mr. Cyril Nitch and Mr. Girling Ball both conveyed to Sir John Thomson-Walker the thanks of the section, not only for his paper, but for all that he had done for British urology. The very existence of the section was in great part due to his energy and enterprise, and British urology owed him much.

REVIEWS AND NOTICES OF BOOKS

Neoplasms of Domesticated Animals

By WILLIAM H. FELDMAN, D.V.M., M.S., Division of Experimental Surgery and Pathology, the Mayo Foundation, Rochester, Minnesota. With a foreword by CHARLES H. MAYO. London: W. B. Saunders Co., Ltd. 1932. Pp. 410. 30s.

THIS monograph is based essentially on material collected by the author consisting of about 600 specimens, but references are given to the extensive literature. The subject is presented from the standpoint of the veterinary pathologist. In three introductory chapters the biology, the general characteristics, and the incidence of animal tumours are discussed. The remainder of the book is devoted to a detailed presentation of the special pathology of the different types of neoplasms found in domesticated animals, with a short account of their clinical manifestations. Observations recorded in the literature on the occurrence of neoplasms in non-domesticated animals are also referred to. The book is illustrated by many exceptionally clear microphotographs and by good photographic reproductions of naked-eye specimens. A chapter is allocated to each separate type of neoplasm and its occurrence in the different species of animals is discussed. This necessitates a good deal of repetition, and the confusion of the reader is enhanced by Dr. Feldman's repeated reference to the fragmentary nature of the data. It is a little surprising that no reference should be made to the incidence of cancer in two species where the data are exceptionally complete: the mouse and the rat. A brief account is given of the experimental work on animal neoplasms, but this is evidently a subject with which the author is not very familiar. The account given is not only inadequate but in some important points misleading. Thus in the section dealing with the Rous chicken sarcoma this tumour is described as "unique and uncommon amongst neoplasms of chickens," because, it is alleged, Rous failed to obtain other spontaneous cases of this type of tumour. As a matter of fact Rous and his collaborators obtained four other spontaneous tumours which proved to be filtrable, and these five tumours represented three entirely different types of sarcoma. Other tumours have been described by a number of other observers whose names are not here mentioned, and the question at the present time is whether transplantable fowl sarcomas will not be capable of a cell-free transmission if tested sufficiently frequently.

While the monograph contains nothing essentially new, it provides a book of reference which should be useful to every student of the cancer problem.

An Introduction to Dermatology

Ninth edition. By SIR NORMAN WALKER, M.D., LL.D., F.R.C.P. Assisted by G. H. PERCIVAL, M.D., F.R.C.P. Edinburgh and London: W. Green and Son. 1932. Pp. 382. 20s.

THE first edition of this estimable work appeared in 1899, and its continued popularity must be a source of gratification to its author. His association, in this edition, with Dr. Perceval is a happy one, for the latest methods of investigation and treatment are presented, while the conservative views and ripe experience of the senior author are available for the reader's guidance. The synopsis of "eczema," which term we are urged to abandon as having outworn its utility, contains hardly any of those long words, or words of disputed meaning, which have marred every essay on this subject hitherto published. This chapter is a masterpiece of simplicity which every reader will enjoy, and, since many cases and anecdotes are quoted, will also easily remember. The sections on treatment are equally concise and readable. Scleroderma, they say, sometimes disappears spontaneously; and the patient whose lesions are represented in the illustrative plate got rapidly well, and "is still under the impression that he owes his recovery to the taking of the cast!"

The supply of coloured plates and illustrations is generous. Their educative value for those with few opportunities of seeing many skin cases is great, and their number may even determine a beginner's choice of a text-book. In this volume the illustrations are selected from typical cases of the commoner affections, and could hardly be bettered. Small diagrams are provided of the histological features of most of the dermatoses discussed; they are exceedingly well drawn, and will greatly assist the student to visualise the lesions described in the text.

For the treatment of psoriasis the authors still recommend chrysarobin. They do so with the usual reservations in the matter of its toxicity, but make no reference to the valuable synthetic substitute, cignolin, which is far more potent than the natural unstable product, can be used without the slightest fear of conjunctivitis or renal complications, and in weak ointments may even be applied to the scalp. In this section they state that "the abuse of chrysarobin favours the development of pityriasis rubra"; this complication is more generally known under the designation of exfoliative dermatitis. Alopecia areata is described as contagious. There is fortunately little evidence to support such a theory; if it were generally accepted the practice usually followed at schools and institutions would require radical adjustment.

Difficulties of the Evolution Theory

By DOUGLAS DEWAR. London: Edward Arnold and Co. Pp. 192. 12s. 6d.

THE author is well known as an active field naturalist and has written extensively on Indian birds. He finds a great deal in nature which is difficult to harmonise with the theory of evolution expounded in the "Origin of Species," and, though he does not formally set out any alternative hypothesis, it is evident that he has considerable sympathy with the idea that life has originated on the earth on many different occasions, and that each seedling has developed along its own line. A good many other people in recent years have also found it hard to believe that all the animals and plants on the earth have come from a single elementary organism; it may well be that they have not. Mr. Dewar's arguments are always interesting even if they are not wholly convincing. The pity of it is that the sober common-sense of Charles Darwin cannot be brought to bear on all the new knowledge and ideas which have come in since his time—mutations, Osborn's predestination, and so forth. Evolution and special creation are not mutually exclusive.

Le pélerinage de la Mecque

By Dr. DUGUET, Chief Officer, Director-General of the Sanitary, Maritime, and Quarantine Council of Egypt. Paris: Les Editions Rieder. 1932. Pp. 333. Fr.30.

Dr. Duguet's book is not only a history of the pilgrimages to Mecca, but it is also a realistic description of the lamentable hygienic conditions under which the faithful pilgrims live and die, and of their customs and beliefs. The early chapters of the book deal principally with the history of the pilgrimage and the countries of origin of the various religious sects taking part in it. The methods of transport to Mecca, by sea, caravan, railroad, and motor-car are discussed, and the various scenes, customs, and religious ceremonies described. In the later chapters each of the pilgrimages since the time of their inception is described, and the various diseases which have caused so much suffering and mortality among the pilgrims are detailed. The appearance of cholera in Europe in 1830 and the chaotic efforts of the various countries concerned to limit the spread of the disease led to the International Sanitary Conference of Paris in 1851. The conclusions and recommendations of this conference are here recalled, and those of the numerous subsequent sanitary conventions are restated, with a description of the organisation and administration of the present-day hospitals and observation stations in Hedjaz and the surrounding districts. In the concluding chapter, on Cholera in Hedjaz, the epidemiology of cholera and the rôle of the sick and the "carrier" are discussed. The author's figures seem to prove that this disease in epidemic form is as common in winter as in summer, and that a high incidence of enteritis and dysentery is the alarm signal for an approaching cholera epidemic. The disease reaches its maximum incidence among the dense populations of the sacred cities at the time of the great religious ceremonies. Dr. Duguet does not believe that cholera is likely to be stamped out among the pilgrims for some time. The disease is endemic in the countries of their origin and presents a constant source of danger A recurrence of the disease in epidemic form among the pilgrims can only be prevented, in his view, by the closest coöperation between the countries concerned and the supervising sanitary authorities.

There are few original discoveries on the subject of the epidemiology of cholera in the book, but as a complete history of the pilgrimages, and as a striking description of the customs, sacred beliefs, and hardships of the pilgrim, it is both instructive and interesting.

The Conduct of Life Assurance Examinations

By E. M. BROCKBANK, M.D. Vict., F.R.C.P., Honorary Consulting Physician, Royal Infirmary, Manchester. London: H. K. Lewis and Co., Ltd. Pp. 173. 7s. 6d.

MOST medical practitioners in active practice may find themselves asked to report upon a proposer for life assurance, either in the capacity of private medical attendant or as medical referee for an insurance company.

A life assurance medical examination differs from an ordinary medical investigation of a sick patient. The details proffered by the proposer in regard to his history are often exiguous, though he may be discursive when speaking as patient to family doctor. The examiner has sometimes to ask special questions, and he will find it desirable in any case to follow a definite routine in his work. Such a routine is often suggested in the company's form, but the advice of one experienced in assurance medical examinations cannot fail to be helpful. The first part of this book gives many valuable hints in regard to the method of examination and the special points to look for. The second part is concerned with the assessment of impaired or damaged lives. The normal rule is for the examiner other than the chief medical officer of the company to be asked for his opinion on the degree of the defect or damage, and to suggest a rating. Here no hard-and-fast rules can be laid down, but the gravity of each particular defect must be estimated. Dr. Brockbank writes clearly, and the manner in which he sets out his material makes it readable and convenient for reference.

The occasional examiner must realise that his report is the basis on which the medical and lay officials of the company have to judge as to whether the proposer is sound and healthy, or, if sub-standard from inheritance, physique, injury, or disease, to what degree the defect is likely to diminish the expectation of life. This book should be of real value to him, because it gives practical, succinct, and definite advice.

Clinical Roentgen Pathology of Thoracic Lesions

By WILLIAM H. MEYER, M.D., Professor of Roentgenology in the New York Post-Graduate Medical School of Columbia University; Director of Roentgenology in the New York Post-Graduate Hospital. London: Henry Kimpton. 1932. Pp. 272. 28s.

THIS volume is the first of a series recording in a condensed form the subject matter of courses given in the X ray department of the New York Post-Graduate Hospital Medical School. It is divided into an introduction in which some fundamentals of radiological interpretation are considered, and six further sections. In the first, a scheme is given for the systematic radiological study of the thorax, which, if followed, should certainly elicit all the

information to be gleaned by screening and from films. The summary of radiographic technique will be found useful, but unfortunately some of the films are reproduced as if taken from behind the patient, and others as if the patient faced the radiographer. The latter view is, on the whole, more satisfactory, and uniformity is desirable at any rate for the inexperienced observer. Section II. deals with what may be called the radiology of general pathology—degeneration, inflammation, hypertrophy, hyperæmia, and so on. This is a valuable section which supplies a basis on which to study individual cases. In Section III. the thoracic cage is considered; here the references to diseases of bone are too sketchy to be of much value, but they will doubtless be more fully discussed in another volume. Section IV. is the largest and most important, for it deals with diseases of the respiratory system. The author mentions the danger of overfilling by the use of an excessive amount of lipiodol. The thesis that with proper technique the diagnosis of bronchiectasis can most often be made without the use of contrast media will hardly be accepted by most radiologists. Pneumonia is well described, but the right lower lobe extends posteriorly much higher than is here suggested. The author does not sufficiently emphasise the importance of the lateral view or of the lordotic position in demonstrating the interlobar septa. Tuberculosis in children and adults is well described. Dr. Meyer emphasises the rarity of syphilitic lesions as opposed to lesions occurring in a syphilitic subject. He ascribes "pleural rings" to pleural adhesions and blebs, rather than to cavities. In Section V. the lesions of the heart and pericardium are well and concisely described; the last section is devoted to a brief account of lesions of the œsophagus and subphrenic region. The book is well printed, and the 68 reproductions of films are excellent. The line drawings, which are in white on black, as in blackboard illustrations, help the text and economise radiograms.

Modern General Anæsthesia

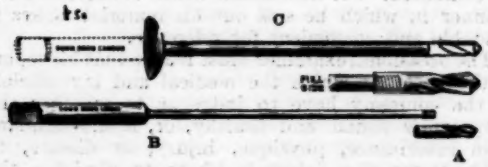
Second edition. By JAMES G. POE, M.D., Lecturer on General Anæsthesia in the Medical and Dental Departments of Baylor University, Dallas, Texas. Philadelphia: F. A. Davis Company. Pp. 231. $2.50.

THIS is essentially a useful treatise, though it is carelessly written. Generally speaking, for major surgery Dr. Poe's preference is for closed administration with partial rebreathing, nitrous oxide or ethylene being the basic anæsthetic. Ether is added as necessary to deepen the anæsthesia, and oxygen and carbon dioxide as required by the patient's condition. Dr. Poe approves of morphia premedication, except in children under 15 years of age, and has found avertin and sodium amytal satisfactory. His general instructions are admirable. Neither nembutal nor percaine are mentioned, and spinal analgesia is, we think, given too little consideration.

NEW INVENTIONS

BONE DRILLS

THE passing of wire, fascia or tendon, through bone is often beset with difficulty, and an instrument has been designed to facilitate it, consisting of a drill-head, A; body, B; and cannula, C. The body B



consists of a proximal shoulder and distal shaft. The shoulder will fit any standard bone drill, whether of the "Colt" or "Archimedian" pattern as shown, or of the chuck pattern, the jaws of which will grip the shoulder immediately beyond the "step" end. The shaft has a tip with a reverse screw threaded end to receive the detachable drill head A. The cannula C exactly fits over the shaft between the head and shoulder, and is of slightly smaller diameter than the drill-head.

The assembled drill is passed through the objective bone so that the drill-head just clears the opposite side. An assistant immediately grasps the drill-head A with a Lane's screw-holding forceps or other suitable tool. The surgeon reverses the drill action, thereby releasing the drill-head, and then withdraws the parent drill with the shaft B attached in one movement. Thus, in quick sequence of drilling, reversing, and withdrawing, a cannula is left in the bone through which the desired wire or ligature can be passed. Withdrawal of the cannula completes the operation.

This device is applicable to the "binding" of patella fragments, while in fractures of the long bones, where open reduction by itself fails to give stability, binding material (of fascia, autogenous tendon or wire) can be readily introduced. The small drill-head enables comparatively deeply situated bones to be so drilled, for only a small clearance—the length of the drill-head—is necessary on the opposite side to the one easily exposed. In the operation of teno-suspension for recurrent dislocation of the shoulder, as practised at the Mayo Clinic,[1] should the surgeon so elect this particular operation, the introduction of the tendinous sling is very easy.

Five years ago Messrs. Down Bros., Ltd., St. Thomas's-street, London, S.E., prepared a drill for me with the head and shaft made as a single unit, and fitting into a shoulder for universal attachment to all bone drills. This

device can still be used with ease for fractured patella and teno-suspension, but cannot be used where there is not a clearance equal to the whole length of the shaft and head, in the contralateral side of the bone. Its usefulness is therefore only very limited and chiefly applicable to the patella. Mr. Herbert Paterson[2] has brought to the notice of the profession a drill somewhat similar to this earlier pattern.

My thanks are due to Mr. E. C. Hughes for allowing me to use this drill on cases under his care, and to Messrs. Down Bros. for their courtesy and patience in the preparation of numerous bone drills during the past five years.

A. SIMPSON-SMITH, M.Chir. Camb., F.R.C.S. Eng.
Guy's Hospital.

[1] Henderson, M. J.: Jour. Amer. Med. Assoc., 1930, xcv., 1653.

[2] Paterson, H. J.: THE LANCET, 1930, i., 302.

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See *The Medical Press and Circular*, April 27th, 1932, pp. 348–351: Ambulatory Treatment of Fractures and Diseased Joints by the Hoefftcke Extension Splint.

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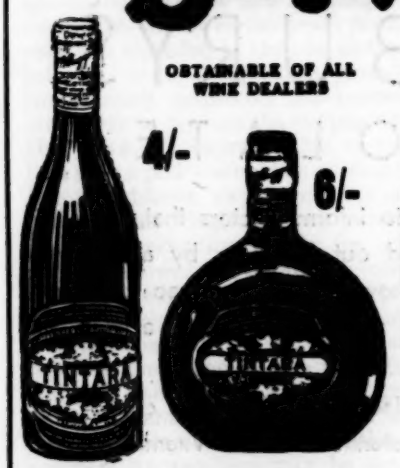

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THE LANCET.

LONDON: SATURDAY, JULY 2, 1932

THE MENTAL DEFECTIVE

A CHANGE of outlook on mental defect is now becoming apparent. The report [1] just issued by a committee of the British Medical Association strengthens the impression left by the Wood report that the perspective has greatly changed since the Royal Commission of 1904–1908, and it shows several ways in which the angle of approach has altered. First of all, the tendency to regard the defective as a person separated by a gulf from normal humanity has been replaced by the conception that "there is a continuous curve of variability in mental power and social capacity and behaviour from the idiot to the normal person." In the second place the pioneers of this movement were possessed by the idea that mental defect was at the root of a very large proportion of our problems of poverty and crime; indeed, it was the antisocial possibilities of the defective that occupied the centre of the picture. The B.M.A. Committee, on the other hand, asserts that "antisocial conduct is not an essential characteristic and is not necessarily even a common characteristic of mentally defective persons," and that "there are large numbers of feeble-minded persons whose behaviour in the community is no more reprehensible, either socially or sexually, than that of persons who are not classed as mentally defective." The growth of child guidance and other movements for the psychological treatment of delinquents is further evidence of the realisation that delinquency and mental defect are not necessarily associated. Yet a third change is reflected in treatment. In the earlier years permanent custodial care was regarded as the one and only satisfactory solution, being designed to protect the defective from himself, to protect the community from him, and lastly to prevent the propagation of his defect. It is obviously impracticable, in view of numbers, that such a policy should be applied to all defectives, but in addition experience has shown, both in America and England, that a certain proportion can be successfully trained for ordinary life and can be allowed to rejoin the community under adequate supervision. It is therefore not so much segregation that is demanded now as "socialisation"; though it remains to be seen whether the Committee is right in thinking that this goal can be reached by the great majority.

The Committee's findings on sterilisation will naturally attract much attention, and in some quarters its members may be accused of lack of courage. They have come to the conclusion, however, that some of the basal arguments advanced in favour of this policy have but little foundation. Procreation by mental defective persons is found to be "not excessive," relative to the average increase of population, and there is said to be ground for believing that "the average number of children who reach adolescence in families where one of the parents is feeble-minded does not significantly exceed that for the community as a whole." In deciding upon its attitude to sterilisation the Committee confesses that unanimity was found impossible; it was also impressed by the lack of sufficient knowledge, both of heredity in general and the heredity of mental defect in particular. Hence it is not surprising that the Committee has steered a middle course and is content to record its general view that sterilisation might be an appropriate and desirable procedure —with adequate safeguards—in a small proportion of mental defectives in respect of whom the chief social danger is propagation. Only in one respect is the Committee more dogmatic, when it states that sterilisation, even if widely applied to mental defectives, would cause no appreciable difference in their number for many generations. This opinion appears on the surface to be somewhat inconsistent with its cautious policy, but it is in line with biological knowledge in that it recognises that carriers play a large part in the propagation of mutations. The committee lately appointed by the Board of Control will have the responsibility of further investigation into this question.

The B.M.A. Committee rightly emphasises the necessity for clinical teaching on mental defect, both for medical students and in post-graduate schools. By their training practitioners are seldom equipped for the diagnosis of any grade above the imbecile, and when one considers how much material is possessed by local authorities, both of education and of mental deficiency, in the larger areas where there are medical schools, there seems to be no excuse for this ignorance. This is a point which might perhaps have had more prominence in the report.

[1] Report of Mental Deficiency Committee. Appointed by the Council of the B.M.A. in 1930 (Chairman: Prof. R. J. A. Berry; hon. secretary: Dr. R. G. Gordon). Brit. Med. Jour. Suppl., June 25th, p. 322.

UNIVERSITY OF LONDON: THE NEW HOME

A FINAL phase of an arduous undertaking has now definitely commenced, for, according to a statement, emanating from Lord ATHLONE, Chancellor of the University of London, and made in unison with the principal officers of the University, a splendid scheme has been embarked upon for the erection of a central building to house corporate activities. For years throughout the columns of the press, and reflected in these pages, a discussion went on as to where this centre was to be placed, and whence the money for its construction was to be drawn. Rival claims were put forward, sometimes with deliberation and sometimes at the instance of romance, for the acquisition of Holland House, Ken Wood, the Foundling Hospital, and even Somerset House, while certain obvious claims for remaining at South Kensington were forcibly put forward. There were urged, sometimes from

influential sources, many pleas for schemes in which a promising nucleus for the development of a great university might be found in each of these places, but throughout the time when the debate was going on there was always a strong feeling that the right place was Bloomsbury, and that the vicinity of institutions already closely connected with the University would make in the end an unanswerable claim. And so it has turned out.

The chequered history of the University is familiar, and its development from a board of Imperial examiners into a great teaching organisation needs no description. But the association of the University with the development of medicine must always be remembered in connexion with these two facts: that the University created for the first time in England a faculty of science, and that here, more than 50 years ago, the degrees were thrown open to women and men on equal terms. When the original aim and function of the University to act merely as an examining body were expanded at the instance of the findings of more than one Royal Commission, a change amounting almost to a revolution occurred. There was grafted on to the original examination scheme an organisation dedicated to teaching and research, when the University became one of the most remarkable aggregations of higher educational institutions in the world—Lord ATHLONE'S statement employs these words justly. The transformation resulted in the bringing into organic relation with the old University of a large group of institutions carrying on in the metropolitan area work of a university standard. The magnitude of the scheme and the wealth of the material to be drawn upon were embarrassing; seeing that the two original constituent colleges of the University were seen to fill between them, if not separately, the accepted requirements of a teaching University; but a valiant response has been made by many keen organisers in the face of the material obstacles of homelessness and poverty and of the less tangible difficulties called for by the reconciliation of opposing ideals and interests. The rising of a central building should signal complete union of effort, when the University may be expected confidently to fill its place worthily in respect of both the empire and its capital.

The selected site is a quadrangle north of the British Museum and abutting on Russell-square to the east and on Gower-street to the west. It is, therefore, immediately adjacent to University College and to the London School of Hygiene and Tropical Medicine, and reasonably near to King's College, the London School of Economics, Bedford College, and the London School of Medicine for Women, while the teachers and students attached to a group of leading medical schools can reach the centre with the minimum of trouble. The site comprises, with its open spaces, some 10½ acres, where adequate provision can be made for the administrative work of the University as well as a suitable assembly hall, library, and students' union. Lord ATHLONE'S statement is accompanied by a view of the model of the proposed buildings as seen from Russell-square, and a reproduction of this view will be found on p. 32 of this issue. The design has been approved by the Court and Senate of the University, and, while many modifications will surely be necessary as the structural details come up to be dealt with, it may be assumed that we are in possession of a general picture. The modern spirit of the design is apposite and its great lines will harmonise with the classic back of the British Museum. It is an ambitious pile, as it should be, and a worthy object of subscription. The statement from the great officers of the University, freely quoted from above, is not an appeal for funds, but money will yet have to be found, and should make its appearance in due course as the deserts of the object are recognised.

THE RESULTS OF THYROIDECTOMY FOR GRAVES'S DISEASE

THE surgical treatment of Graves's disease has advanced rapidly during the last 15 years. Difficulties have been smoothed away one after another, accompanied by progressive reduction in the mortality-rate. Finally, the introduction of Lugol's solution of iodine in pre- and post-operative treatment has made the two- or three-stage operation, often very trying to the patient, a matter of exceptional occurrence. One of the most important advances of all, however, has come from the patients themselves, who, by consenting to submit to surgical treatment in the relatively early stages, are gradually eliminating those desperate last hope operations which surgeons in the past were called upon to perform. From an operation generally regarded as dangerous that for exophthalmic goitre has become one of the safest of the major operations in the hands of a surgeon familiar with the disease. The latest figures from the Mayo Clinic show a mortality of well below 0·5 per cent.; in this country the rather later stage at which operation is usually undertaken makes the figures somewhat higher. A low mortality-rate, however, is not by itself enough to give confidence in the surgical treatment of any lesion; something more than mere avoidance of fatality is expected. A proper evaluation of the end-results of any form of treatment is what the patient, his friends, and his family doctor want, and it is not easy to procure. Not until every hospital has a properly staffed follow-up department, and until it is recognised that public funds expended on such departments are being employed essentially for the benefit of patients and not to satisfy some statistical caprice, will exact figures be available. Incidentally, the formation of a network to cover all parts of the country, by the organisation of part-time volunteers, seems to be a possible way of enlisting lay help in a task which no one hospital can bring to completion except as a result of occasional spasmodic efforts. A band of women, under the leadership of LADY (WALTER) FLETCHER, have traced a remarkably high proportion of old cases for the Marie Curie Hospital, while boy scouts have worked successfully for one

of the departments of University College Hospital. The hunt may call for ingenuity and would assuredly appeal to a detective instinct, which is nowadays widely spread. When cases have been traced, their interrogation would mostly be left to trained inquirers, who would then classify and compare groups of cases and evaluate the end-results of methods of treatment with something approaching scientific accuracy. Serious efforts have been made recently in America to collect information relating to larger series of cases. The transactions of the American Surgical Association[1] for 1931 contain two papers of interest from the point of view of ultimate prognosis in thyroid surgery. The first, on thyroid surgery at the Portland Clinic, by Dr. THOMAS M. JOYCE, is an attempt to estimate the present condition of 1066 goitre cases operated on during 1925, 1926, and 1927, and including 444 cases of primary Graves's disease, 410 cases of secondary Graves's disease, 200 non-toxic goitres, 7 carcinomata, and 5 cases of thyroiditis. Of 700 the patients who were traced 80 per cent. were well and strong and able to work, 16·5 per cent. were in fair health only, from causes in many cases not referable to their thyroid disease, and 3·5 per cent. were dead. The other paper, on the end-results of thyroidectomy, by Dr. FREDERICK A. COLLER and Dr. EUGENE B. POTTER, of Ann Arbor, is a study of 1200 cases of goitre treated between August, 1925, and December, 1929. Of the 1200 patients, only 733 could be traced and of these 267 were primary Graves's disease, 273 secondary Graves's disease, and 184 non-toxic goitres. 91·5 per cent. of these patients were found to be carrying on the same duties, or others equally strenuous, as before the onset of their disease, and although a fair number of these had residual symptoms such as exophthalmos or some subjective cardiac symptoms, they were not sufficiently serious to interfere with the tenour of their lives. 8·2 per cent. were either unrelieved or relieved for a time followed by relapse, and one patient was made worse. Mr. CECIL JOLL,[2] in discussing the end-results in his cases, suggests that a sound practical standard of successful treatment is the capacity to withstand the physical and psychical strains of modern life, and among women the capacity to bear children without relapse. On this standard he was able to show between 85 per cent. and 90 per cent. of cures in exophthalmic goitre and all his cases not cured were improved.

These statistics indicate a situation contrasting favourably with that met with in comparable surgical interventions, and the outlook shown by recent records is increasingly promising. It is not possible to compare the figures with those obtained by methods of treatment other than surgical, because care must be taken in the selection of cases to be treated by the methods available. There are patients who recover completely by means of rest and other simple medical measures, and there are other cases in which results are obtained by irradiation that are as good as those following thyroidectomy. These measures are often efficacious in the milder and the earlier cases, but it seems that only thyroidectomy can restore health and efficiency in the more serious and long-continued cases. A clearer knowledge is required of the indications for one or other method, and improvements in methods of irradiation must be awaited before the place of thyroidectomy in the treatment of toxic goitre can be seriously challenged.

[1] Transactions of American Surgical Association. Edited by Walter E. Lee, M.D. J. B. Lippincott Company. 1931. Pp. 518.
[2] Diseases of the Thyroid Gland, London, 1932.

EPSOM COLLEGE

WE publish this week a report of the annual general meeting of the governors of Epsom College, and a letter from Dr. Raymond Crawfurd, chairman of the Council of the College, announcing that Parliamentary sanction has been obtained for the inclusion of medical women and their children in the benefits accruing under the Foundation. Three-quarters of a century, and more, ago, when the College was founded under the somewhat unfortunate name of the Royal Medical Benevolent College, there could be nothing intentional in the omission from the original scheme of all mention of women doctors—of whom only a small group existed in any country, and no one suspected what their presence in our ranks promised. But the change of circumstances between 1855 and 1932 has been so extraordinary that many must have wondered why, in accordance with that change, the omission of women practitioners from the advantages of the College has not been recognised sooner as illogical. There was but one reason for inaction—namely, the great expense of a private Act of Parliament—and this appeared to be necessary to effect the radical change in the constitution. Epsom College had experience of the cost that must necessarily be met in the endeavour to secure a private Act, for they had adopted this method of effecting a simplification of title, found necessary for the well-being of the College. At the time that this change was made it was felt that to ask for further modifications in the constitution might have jeopardised the passage of the Bill, while this was a matter of vital importance. And now the Charity Commissioners and the Board of Education have come to the rescue, and the anomalous differentiation between women and men disappears, women having an equal claim upon the good offices of the College.

The new situation in the affairs of the College should remind our readers of their responsibility in connexion with the institution. A medical effort, having a provident object, has developed into a great public school; the provident side has not been lost sight of but has shared in the progress of the College. Further, the choice of the foundationers and pensioners of the College will for the future reside in a selection committee and not be dependent on a general voting system. This is a change that will result in a more satisfactory employment of the subscriptions, and justifies further an advocacy of support from all doctors.

DONATIONS AND BEQUESTS.—Under the will of the late Mr. John Edmund Legg, who left estate of the gross value of £10,063, with net personalty of £7922, Gonville and Caius College, Cambridge, will largely benefit, the testator leaving to the College the residue of his estate for the promotion of the study of all or any of the following subjects—namely, biology, chemistry, medicine, and agriculture. In making his bequests, which include a small annual payment to Addenbrooke's Hospital, Mr. Legg expressed his desire to acknowledge, and to some extent repay, his indebtedness to Gonville and Caius College for the advantages he enjoyed while being a scholar there.

ANNOTATIONS

SERUM TREATMENT OF PNEUMONIA

THE preparation of an efficient antipneumococcal serum has been difficult for several reasons. The causal organism of lobar pneumonia comprises several distinct serological types, and the serum will agglutinate only the particular strain from which it is prepared. Further, the pneumococcus does not produce either exotoxin or endotoxin, and its antisera must be antibacterial instead of antitoxic—a fact that makes it hard to prepare a serum of high enough titre. In 1926 L. D. Felton, of Harvard, succeeded in preparing a concentrated polyvalent antiserum against pneumococci of types I. and II. Several clinical reports on the use of this serum in lobar pneumonia due to these two types have been published, notably by N. Plummer and R. L. Cecil[1] in America, and later in our own columns[2] by physicians of the Royal Infirmaries of Glasgow and Edinburgh. These observers, with commendable discretion, agreed that although no definite conclusions could yet be drawn, the evidence, so far as it went, indicated that Felton's serum might prove to be of value. The further report from Glasgow, appearing on p. 8 of this issue, shows that its authors are fully aware of the great difficulty of assessing results in a disease like lobar pneumonia, whose mortality depends on many factors which it is impossible to control. They have clearly taken pains to make the comparison between treated and untreated cases a fair one, but although the remedy was given to 137 patients, they think this series again too small for any accurate conclusion about its value. Their mortality for type I. is only 4 per cent. in cases treated with serum, compared with 10 per cent. in untreated cases, but the latter group is numerically more than four times as large. They are unable to confirm previous observations that the use of serum lessens toxæmia and prevents complications, but they agree that it may shorten the febrile period. It is noteworthy, moreover, that they conclude their review of the evidence with the observation that serum and oxygen for the treatment of pneumonia should be available in every hospital. This is a definite and practical conclusion, and should receive attention. While it is disappointing that more obvious success has not been obtained with the treatment, the Glasgow investigation has already been fully justified. The Scottish Branch of the British Red Cross Society, which provided the necessary funds, is to be congratulated on the support it has given to a useful piece of work.

OBSERVATIONS ON BARBITURATE NARCOSIS

Prof. J. F. Fulton and Dr. A. D. Keller,[3] of Yale University, record some experiments in which a chimpanzee was submitted to three major neurological operations at intervals of one or two months in order to demonstrate the respective virtues of dial, amytal, and nembutal as anæsthetics. In its neurological behaviour and in its response to drugs this ape approaches the human being more closely than the baboon or the monkey. It had previously been found that the barbiturates afforded "almost ideal" anæsthesia for neurological work on primates, since in a series of nearly 200 operations on baboons, monkeys, and chimpanzees there were only three deaths attributable to the narcotic. In the course of this investigation the interesting observation was made that in very dry atmospheres, such as a centrally heated laboratory in New Haven, the recovery period was considerably longer than in moist ones, such as the Thames valley. The delay is attributed to the relatively greater loss of fluid through lungs and skin, and it was observed in cats as well as monkeys. In the experiment under review the chimpanzee seems to have behaved towards dial much as an average child would. It was considerably disturbed and cried at the prospect of injection, but once this was over it soon grew quiet and subsequently fell into an excellent narcosis. Reflex coughing persisted throughout, and the operation, which consisted of raising a bone-flap and then periodically stimulating and excising certain motor areas, lasted about seven hours. The chimpanzee took nearly three days to throw off entirely the effects of the dial, but with sodium amytal recovery was quicker and with nembutal much quicker still. The last-named drug was found to differ from the two others in depressing the excitability of the motor cortex.

SCHOOL MYOPIA

FORMERLY it was agreed that the development of myopia during school life, which is well known to take place in a certain proportion of children, is due to the long hours during which school-children concentrate their eyes on near work. Notably, since Prof. H. L. Cohn, of Breslau, published his statistics more than 50 years ago, showing the rapid increase in the proportion of myopia in the various schools examined by him, varying directly with the length of time spent in the schools, has this proposition been further illustrated and in more modern times taken for granted. In recent years, however, it has been questioned. In 1913 Dr. A. Steiger published a lengthy volume to prove that to attribute myopia to school life was to argue from post-hoc to propter-hoc, and there was much in what he said. Mr. Arnold Sorsby now sums up recent views on the subject.[1] There is, he says, no difference in kind but only in degree between the hypermetropic or short eye and the myopic or long one, any more than there is difference in kind between individuals who vary in stature. Apart from cases in which there are myopic crescents or other fundus changes, or again, apart from all cases of myopia of over six dioptres, a curve can be constructed for adults showing emmetropia as an average condition, with deviations on the hypermetropic side corresponding roughly both in frequency and in degree to deviations on the myopic side. For children such a curve would have its peak somewhere on the hypermetropic side, since myopia in infants is a rarity. It is an unwarranted assumption that all myopes are afflicted with a disease due to pressure on the eyeball. It is generally assumed that myopia depends on axial length alone, but this is far from being necessarily the case. The limits of variation of refraction, both of the cornea and of the lens, are very wide. Myopia of 20 dioptres with typical fundus changes has been reported in an eye of 22·4 mm.—i.e., about average—axial length. It is also contended that the fundus changes associated

[1] New Eng. Jour. Med., 1928, cxcix., 415; Jour. Amer. Med. Assoc., 1930, xcv., 1547.
[2] THE LANCET, 1930, ii., 1387 and 1390.
[3] Surg., Gyn., and Obst., May, 1932, p. 764.

[1] Brit. Jour. Ophth., April, 1932.

with many cases of myopia are not necessarily due to stretching of the globe, but may be regarded as a sort of abiotrophic manifestation analogous to the macular degeneration which is termed senile.

These are the arguments of the modern school, but we agree with Mr. Sorsby in regarding the problem of myopia as not yet solved. The different behaviour of the hypermetropic and the myopic eye during school life is a fact that cannot be ignored, and although no theory of muscular pressure during convergence, causing lengthening of the globe, can be considered as more than a hypothesis, the presumption that either from this cause or from the vascular engorgement due to long-continued stooping overwork of the eyes is harmful, at any rate, to those eyes that have already shown a tendency to lengthen, is sufficiently strong to justify the hygienic measures usually recommended, and more particularly the special treatment adopted for children with high myopia in the L.C.C. schools. But in the past the theory that myopia is a disease due to overwork of the eyes has certainly been pressed too far. The incidence of high myopia among the labouring classes and the phenomenon of monocular myopia tell against it. Heredity is probably the main factor in the causation of myopia as it is of hypermetropia and of astigmatism; but to admit this is not to justify a fatalistic attitude which would deprecate the hygienic precautions which have an influence in checking it.

PROGNOSIS OF HEART-BLOCK

IT is generally held that if complete heart-block is discovered the outlook is necessarily bad; but a case described by K. E. Harris [1] shows that this is not always so, for the patient was alive and free from symptoms 28 years after the heart-block was recognised. L. B. Ellis,[2] in a study of 43 cases of transient and complete heart-block, has confirmed this view, since four of the twenty-nine patients in whom the block was permanent lived 24, 15, 14, and 7 years respectively, and it is probable that a further two had lived for at least nine years with complete heart-block. Two important factors in assessing the prognosis in any given case are the ætiology and the age. This is shown by the fact that of the patients followed up under 40 years of age all were living, whereas of those over 40 only 20 per cent. were alive at the time of the inquiry. As regards ætiology there were nine cases in which the cause was either unknown or congenital, and of these all were alive. Only one case was found to have a definite diphtheritic ætiology and in only four others was a history of diphtheria obtained. This is in marked contrast with the findings of Butler and Levine,[3] who obtained a history of diphtheria in 10 out of 20 adult patients with otherwise unexplained heart-block. In the diphtheritic case described by Ellis the block had persisted for 24 years without producing any disability or symptoms. In 52 per cent. of the whole series arterio-sclerotic changes were the probable cause of the heart-block, and of the 12 patients followed, only three were still alive. Although syphilis is usually regarded as an important cause of heart-block only two cases in this series had a positive Wassermann reaction and in both of these there was associated arterio-sclerosis. While it is unusual for patients with heart-block to have a heart of normal size, six of those followed showed no cardiac enlargement and of these, five were still alive. Another factor influencing prognosis is the occurrence of Stokes-Adams attacks, only one of the living patients having suffered from these attacks, which were, however, common in the patients who failed to survive. These studies show that heart-block should not be considered as a disease entity but rather as a sign of cardiac damage. The severity of this damage depends largely on the cause, since when the block is due to arterio-sclerotic changes it is usually only part of a generalised myocardial lesion; whereas if the block is the result of some congenital defect or of an acute infection the lesion is more likely to be localised to the conducting tissue while the rest of the myocardium is spared any serious and permanent damage.

[1] Heart, 1929, xiv., 289.
[2] Amer. Jour. Med. Sci., February, 1932, p. 225.
[3] Butler, S., and Levine, S. A.: Amer. Heart Jour., 1930, v., 492.

A VERY YOUNG HUMAN OVUM

AT a meeting of the Anatomical Society of Great Britain and Ireland, held at St. Mary's Hospital on May 6th, Prof. J. E. Frazer showed and described a very young human ovum in situ. The specimen was obtained post mortem, and for material of such sort was in good condition; the ovum itself, however, had apparently suffered in some ways from the marked toxæmia which existed for a time before the mother's death. We give a tracing of a section, through the middle of this ovum, in the accompanying figure, at a magnification of approximately 16. The section passes through the minute embryonic vesicles, which are embedded in mesoderm on the basal chorion. The cavity in which the ovum lies is in the more superficial part of the stratum compactum, and contains much blood (represented blank in the figure), and rather stumpy and short villi, with a considerable amount of cyto- and plasmodi-trophoblast. The decidua is very vascular, and blood is also contained in some of the glandular tubes, which have been cut through in the extension of the cavity. No definite aperture of entry was apparent, nor was there any "closing coagulum," and the epithelial lining of the uterus was only partially destroyed over the convexity of the capsular decidua. Implantation was in the extreme upper part of the posterior wall. No history was obtainable, nor does there seem to have been any menstrual irregularity or interruption, but the specimen appears to be perhaps a few hours older than the classical one of Peters, and is estimated

Ovum in situ. U.C., uterine cavity. E.V., embryonic vesicles; amnion and yolk-sac, against basal chorion.

to be about 15 days. This seems, therefore, to be the youngest ovum, so far described, derived from English sources. A full account will be published in a future number of the *Journal of Anatomy*.

ARGUING FROM WATER TO MILK

IN his report for 1931 [1] Sir Alexander Houston deals incidentally with the pasteurisation of milk. At first sight this might appear a digression on the part of the Director of Water Examination, but it is actually very much to the point. Not only is the problem of milk pasteurisation analogous to that of water chlorination, but the milk-borne epidemic of paratyphoid fever in Epping last February cost the Water Board a large sum in safeguarding the water-supply to well over a million persons. An investigation, he tells us, showed that an enormous amount of highly pathogenic bacteria from a sewage farm were entering Cobbins Brook, a tributary of the Lea, above the Board's intakes. Chlorination of this watercourse, among other expensive precautions, removed the danger. Presumably the organisms got into the milk, not because the cows drank the polluted water, but because they waded in it and wetted their hides and udders and became splashed with mud from the banks; milk utensils, moreover, are sometimes washed and rinsed with polluted water, and occasionally, though rarely, water is used to adulterate milk. Sir Alexander holds that while dangers of this sort exist, all milk should be pasteurised. He then asks why the ordinary bacteriological standards for milk and water should be so startlingly different. Most waterworks authorities, he says, aim at producing water a majority of samples of which contain no *Bacillus coli* in 100 c.cm. and only five microbes per c.cm. on agar at 37° C. The standards applied to the special grades of milk sold under licence granted by the Ministry of Health or a local authority are nothing like so strict: certified milk must not contain more than 30,000 bacteria per c.cm. or any *B. coli* in 0·1 c.cm.; Grade A must not contain more than 200,000 bacteria per c.cm. or any *B. coli* in 0·01 c.cm. Sir Alexander answers his own question by quoting a passage he wrote 25 years ago, pointing out that some degree of coliform pollution of milk is almost unavoidable and that *B. coli* can only be kept within reasonable limits by refrigeration or sterilisation, whereas impure water can be purified by storage and filtration. Secondly, *B. coli* in milk usually come from non-human and those in water from human sources. Thirdly, *B. coli* multiply so quickly in milk that the count gives no indication of the original amount of pollution; in water their number remains stationary or diminishes. It is therefore impossible to obtain, even in graded milks, the cleanliness demanded of public drinking water as a matter of course, and for this reason he believes that the further precaution of heating is desirable.

THE SEX-RATIO IN MIGRAINE

IT has frequently been stated that the incidence of migraine is considerably higher in females than in males, the ratio being variously placed between, roughly, the limits of 2 to 1 and 5 to 1. On the other hand such authorities as W. R. Gowers and F. G. Crookshank believe that the preponderance of females has been greatly exaggerated, and that possibly in true migraine there is no sex difference in incidence. In a series of 545 cases reported by Dr. William Allan (North Carolina),[1] women outnumbered men in the ratio of 2·5 to 1. Less than 10 per cent. of these failed to give a history of headaches in the father or mother or both, but there was no evidence (as has been suggested) that the malady is inherited as a sex-linked trait. Possibly, Dr. Allan suggests, an explanation may lie in the inclusion of many types of headache in women which were not true migraine. Therefore, considering flittering scotoma to be a definite indication of true migraine, he analyses 402 case-histories in which its presence or absence was noted. Of the 122 men 74 had flittering scotoma (60 per cent.) as compared with 127 of the 280 women (45 per cent.). If this criterion is accepted, a lower percentage of the female cases referred to true migraine, but the female to male ratio still remains at about 1·7 to 1. In the cases dealt with in this study, the duration of headache differs significantly between the sexes. Of the men 87 per cent., compared with 67 per cent. of the women, record a duration of one day or less, while in only 4·4 per cent. of the men is the duration as much as three days, compared with 13·6 per cent. of the women. There is some evidence that in women an accompanying nausea and vomiting is more frequent, though the sex differences are slight and not statistically significant. The actual incidence of migraine in the general population Dr. Allan endeavours to measure by means of a supplementary investigation amongst the members of the Mecklenburg County Medical Society. Among 103 men he found that 54 per cent. gave a history of periodic headaches that could be clinically classified as definite migraine, while amongst the 92 wives 53 per cent. gave similar histories. The proportions with hemicrania and flittering scotoma were approximately equal in the sexes, while both groups gave a parental history in 90 per cent. of the cases. These results lead him to the conclusion that the incidence of migraine is the same in men as in women but that clinically more women than men are seen owing to the greater severity of the headache in women. Although in a previous paper the author concluded that occupation plays no part in the incidence of migraine in either sex, it would obviously seem more than a little rash to generalise from these results, which are based upon a small sample of a distinct occupational and social class, of which as many as one-half are classified as suffering from the complaint. Migraine in one of its multiple forms is doubtless commoner than is generally recognised, but anything approaching 50 per cent. of the general population seems an unbelievably high figure.

THE COMPARATIVE STUDY OF CANCER

THE statement that malignant neoplasms are rare in animals, or at any rate in certain species of animals, is repeated even in quite recent literature and in books by acknowledged authorities on cancer. Not infrequently such a statement is made in order to prove a pet theory. Thus one argues that cancer is due to diet, because it is alleged to be rare in herbivorous and frequent in carnivorous animals. Another argues that cancer is a disease of civilisation because wild animals living in their natural habitat are said to be free from it. Abundant evidence has accumulated during the last 25 years or more that there is no justification for statements of this kind. Unfortunately the information is scattered through the literature and much of it is to be found in journals

[1] Annual Report to the Metropolitan Water Board for 1931. London: P. S. King and Son, Ltd. 10s. 6d.

[1] Archives of Neurology and Psychiatry, June, 1932, p. 1436.

not readily accessible, for the text-books of veterinary pathology deal with the subject only from the clinical point of view and give but little general information on the distribution of cancer, even in the restricted field of the domesticated animals. The appearance of two publications dealing with the subject comprehensively from somewhat different points of view is therefore opportune. A book by Dr. W. H. Feldman, entitled "Neoplasms of Domesticated Animals," is reviewed elsewhere in this issue. An essay by Dr. W. Cramer on the comparative study of cancer [1] is concerned with the general aspects of the problem and summarises the important information which has been gained from the study of malignancy. The fact that all species of vertebrates are subject to the disease, including non-domesticated animals living in their natural habitat, shows that such external factors as diet and environment and civilisation cannot be of fundamental importance in the ætiology of cancer. Another significant fact to which attention is drawn is that the different species show constant differences both in the type of tissue (epithelium or connective tissue) and in the organs most frequently affected by the development of malignancy; but wherever malignancy occurs it shows the phenomenon of age-incidence characteristic of the disease in man. This, in the light of recent work on experimental carcinogenesis, indicates that throughout the vertebrate kingdom the development of malignancy requires a long preparatory period amounting to a considerable fraction of the span of life of the individual. This is true even for the spontaneous occurrence of those fowl sarcomas which can be transmitted by a cell-free filtrate. This means, as Dr. Cramer points out, that for our understanding of the ætiology of cancer this slow preparatory process is at least as important as the actual change which takes place when a normal cell is transformed into a malignant one. The nature of the actual change is still unknown, but we already know a good deal about the preparatory process, and it is in this direction that cancer research is making active progress.

[1] The Cancer Review, June, 1932, p. 241.

BERNHARD BANG

VETERINARY medicine has lost one of its most distinguished exponents by the death of Prof. B. L. F. Bang, of Copenhagen, in his eighty-fifth year. Graduating in 1880, two years before Koch's announcement of the discovery of the tubercle bacillus, Bang was early made a convert to the newly born science of bacteriology, and as one of the pioneer workers in this subject he carried out researches into many of the most important infectious diseases of domestic animals. Though his name is written large on many pages of the history of veterinary bacteriology, he will be remembered chiefly for his work on tuberculosis and contagious abortion of cattle. His plan for the eradication of bovine tuberculosis, known as the Bang method, was first put forward in 1894. It rested on the observation that the immense majority of calves were healthy, even when they were born of tuberculous parents, and that, provided they were separated from the infected herd and fed on pasteurised milk or on the milk of healthy cows, they would remain healthy indefinitely. The essential feature of the method consists in the formation of a clean herd housed apart from the original infected herd, and recruited from calves which have been separated from their mothers within two days of birth. The old animals, whether infected or not, are prevented from coming into contact with the new herd, and are gradually sold or killed off. The new herd is tested with tuberculin every six months, and any positive reactors are transferred to the old herd. If the necessary precautions to avoid the occurrence of cross-infection are faithfully carried out, it is not infrequently possible in this way to eradicate tuberculosis in four to six years. Though not as successful as the more drastic "accredited herd plan," which has been used so largely in the United States of America and in Canada, it has the great merit of being relatively inexpensive and being applicable by any intelligent farmer. The discovery of the causative agent of contagious abortion was the joint work of Bang and Stribolt, who succeeded in demonstrating a minute bacillus in the infected membranes and in the stomach of the fœtus. Though Bang's bacillus, as this organism was generally called, was described in 1897, and the bacillus of Malta fever was isolated by Bruce ten years previously, it was not till 1918 that, owing to the work of Alice Evans, the close relationship of these two organisms was established. Since that date Bang's bacillus, now dignified by the name of *Brucella abortus*, has attracted increasing attention, particularly amongst the medical profession, on account of its ability to give rise to undulant fever in man.

Prof. Bang, who was born at Sorö, in Zealand, and was educated there and at Copenhagen, was appointed professor of internal diseases at the Royal Veterinary College in Copenhagen in 1892, and held this chair until 1914. His son, Dr. Oluf Bang, who is now professor of pathology and therapeutics at the college, has made several contributions to the study of animal diseases, and is well known to members of the veterinary profession in this country.

HEALTH IN FACTORIES AND WORKSHOPS

THE signs of the times appear in the latest report of the senior medical inspector of factories.[1] The bad state of the labour market is reflected in the low incidence of notifiable industrial disease, while the mechanisation of industry shows itself in an increase of "nervous disabilities" due to the boredom of the machine hand—a condition almost unknown to the craftsman. One of the pressing problems in industrial health to-day is the control of this vague, ill-defined, but no doubt very real disability due to ennui; vastly more days are lost from this than from all the recognised industrial diseases put together. An economic problem is that of the woman worker who undertakes home duties both before and after work, thus expending energy which in the interests of her health would be better conserved. Of the special industrial diseases, silicosis and asbestosis have received much attention. Many visits have been paid to factories with the object of estimating the risk and advising preventive measures, and the health of packers in the asbestos industry has been specially investigated. The department has obtained much information from the presence of one of their inspectors at inquests on suspected cases of silicosis or asbestosis. The Registrar-General received 785 certificates of death from fibrosis of the lungs; 319 were due to silicosis, compared with 241 last year. The cases of silicosis occurred in a great variety of industries, the most affected being sandstone (69), pottery (57), coal-mining (47), grinding (36). During the year nine deaths from asbestosis, or asbestosis

[1] See Report of the Chief Inspector of Factories and Workshops for 1931. H.M. Stationery Office. 1932. Pp. 155. 2s. 6d.

with tuberculosis, came to the notice of the department, bringing the total of which particulars are available to 35. It is of interest that the average length of employment in the fatal cases of silicosis is more than twice as long as in the fatal cases of asbestosis. Dr. Bridge says, "the unenviable position of sandblasting and occupations in the asbestos industry at the present time is evident." The effective control of the dust in sandblasting is said to be a matter of extreme difficulty, though progress has been made in abolishing the risk by the use of steel shot as the abrasive instead of sand. The Asbestos Industry Regulations came into force on March 1st, 1932, but already a noticeable improvement in exhaust ventilation and suppression of dust had taken place in a number of factories. The decrease in dermatitis seems to be maintained and the incidence of some of the more readily controlled causes has been reduced, notably oil. Increased knowledge of the value of coating the exposed skin with a film of ointment is largely responsible for reducing dermatitis among painters. An examination of cellulose sprayers, which is being continued, has shown a definite relation between conditions of ventilation and ill-health; the signs and symptoms of local irritation, depression, and fatigue seem to be due to the solvents of cellulose and not to the diluent hydrocarbons. A small group of experienced workers showed no apparent injury to health, even in the absence of localised exhaust ventilation, when xylol was used as a diluent. Two cases of cadmium poisoning are recorded in men working on welding electrodes which contained a fiftieth of an ounce of cadmium; fumes were given off when the electrode was heated above 315° C. Five men employed in sinking a caisson cylinder in marshy ground near the Thames became fatally asphyxiated. Death was due to anoxæmia from exposure to an atmosphere incapable of supporting life; this atmosphere was found to consist of oxygen, 0·12 per cent.; carbon dioxide, 14·36 per cent.; methane, 4·59 per cent.; and the rest nitrogen. Considerable attention has been devoted by the department to the "safety first" campaign against accidents. Accidents are no longer attributed to machinery alone, and educational organisation for dealing with the human factor is now almost universally accepted as a practical and business-like development in industry.

THE NATIONAL PHYSICAL LABORATORY

THE annual inspection of the National Physical Laboratory at Teddington took place on June 28th, when a large number of visitors were present and were received by Sir Frederick Gowland Hopkins, Sir Joseph Petavel the director, and Sir Richard Glazebrook. The numerous visitors had opportunities of watching demonstrations illustrating progress in engineering, aero-dynamics and metallurgy, in physics with special application to optics, electricity and wireless mechanisms, and metrology—nor does this exhaust the menu of the feast set before them. It is interesting to reflect that any or all of these developments of exact knowledge, however widely separated from clinical medicine they appear to be, may have to-day a direct application to practice. All science is to-day more or less directly reflected in medicine, so many are the boundaries which have been removed. No man can say exactly, for example, where chemistry stops and physiology begins, what familiarity with electricity can rightly be demanded of the medical man, or what knowledge of physics or of statistics he will require. But with a medical man the sciences outside his apparent range have to be brought into action not in the ideal conditions of the study, the laboratory, or the workshop, but in all varying environments with application to subjects of every kind of make-up. When we attempt to estimate the progress of scientific medicine by statistics, we have to show that the figures have been properly corrected and properly used. But the working doctor often has to rely on experts to explain and defend figures he may himself have collected, before he can direct his energies in accordance with their evidence. A similar humble attitude must be adopted when, for example, he has to employ discoveries in the realms of electricity or physics for application in therapeutics. The lesson of such an exhibition as that provided by the National Physical Laboratory is that as medicine is directed to the benefit of all sorts and conditions of men, so all sorts and conditions of knowledge will find their place in its development. The medical laboratory depends for much of its work on investigations such as are directed by the metrology department of the National Physical Laboratory. That department is responsible for the maintenance of our standards of length, mass, and time, and verification is carried on here of all types of precise measuring instruments. In this department there was on view a new wavelength comparator for measuring length in terms of waves of light, with a view to establishing a wave of light as the universal unit in place of the Imperial standard yard and the metre. Another apparatus, a one-kilogramme vacuum balance, has been constructed at the laboratory for weighing to the highest precision in air or in vacuum; the instrument will probably give an accuracy greater than that attainable by the present balance—namely, one part in a hundred million. There is a vibration clock by which observations can be made to within one five-thousandth of a second. Such standardisation may at first glance appear far removed from anything which clinical medicine needs. But if we judge what our developments in exact science may become by comparison with the pathological routine of a generation ago, and if we see no reason why the rate of progress should not be maintained, it is clear that no standardisation can be too accurate for what our needs may be. Such is the message to us of this great technical show.

ROCKEFELLER MEDICAL FELLOWSHIPS.—The Medical Research Council announce that, on behalf of the Rockefeller Foundation, they have awarded travelling Fellowships for 1932–33 as follows: Colin Panton Beattie, M.B., of the Bacteriology Department of Edinburgh University; William Donald Wykeham Brooks, M.R.C.P., of St. Mary's Hospital, London; Eleanor Mildred Creak, M.R.C.P., of the Maudsley Hospital, London; Ian George Wilson Hill, M.B., of the Royal Infirmary, Edinburgh; William Arthur Mackey, M.B., of the Department of Surgery of Glasgow University; David James Macmyn, M.B., of King's College Hospital, London; and John Chassar Moir, M.D., of University College Hospital, London. Dr. Brooks and Dr. MacMyn have been appointed on modified conditions while receiving emoluments from other sources.

These Fellowships are awarded to graduates who have had some training in research work either in the primary sciences of medicine or in clinical medicine or surgery, and who are likely to profit by a period of work at a chosen centre in America, or, in special cases, in Europe, before taking up positions for higher teaching or research in the British Isles. In view of the high qualifications of so many of the candidates on this occasion, the Council greatly regret that it has not been possible for them to make a larger number of awards.

SPECIAL ARTICLES

SONNE DYSENTERY IN AN INDUSTRIAL TOWN

BY JOHN S. MACGILL, M.D. EDIN.
AND
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SINCE the Sonne type of dysentery bacillus was first definitely identified by Bamforth and by Smith in 1924 as a cause of entero-colitis in this country, reports published by various observers indicate that infection with this organism is widespread. The mildness of the disease in its usual form probably accounts for the fact that many of these outbreaks have been reported in hospitals where the nursing staff and patients are under close medical supervision. The clinical picture may, however, be that of severe dysentery, and fatal cases have been reported (Wiseman, 1927; Charles and Warren, 1929; Hay, 1930; Fraser and Smith, 1930). While most of the cases recorded have occurred sporadically or in small outbreaks, the milk-borne epidemic reported by Fyfe (1927) and the epidemics described by Cann and de Navasquez (1931) and by Smith (1931) affected a considerable number of people.

In the present outbreak, which occurred in the industrial town of Denton, near Manchester, over a period of four months, Sonne's bacillus was apparently the infecting organism in the majority of cases. It is impossible to estimate accurately the total number of cases, for many children seem to have had abdominal symptoms with diarrhœa, but were never considered ill enough to require medical attention. It seems likely that at least 100 individuals were affected in all. In 36 cases notified by one of us (J. S. MacG.) the diagnosis was either confirmed by bacteriological examination, or infection by immediate contact with such proved cases was obvious. The details of these cases, on which the following account is based, are given in the accompanying Table.

The first recognised case became ill on Nov. 20th, 1931, and from that time onwards cases occurred at the rate of three or four a week until March 13th, 1932, when the last case notified became ill. The peak of the epidemic occurred in the week ending Jan. 31st, when nine cases, in which bacteriological diagnosis was established, occurred. The epidemic seems to have originated around a school at the east end of Denton, as the first eight cases observed lived within a quarter of a mile of the school. Five of these eight were pupils at the school and the other three were contacts. From this district infection spread to pupils of other schools towards the west end of the town, so that while cases were appearing here, the disease had died down at the east end.

Children of school age were most frequently affected and, from contact with these, younger children or adults seemed to contract infection. Of the notified cases 1 was an infant 3 months old, 9 were in the age-group 1 to 5 years, 11 in the group 5 to 15 years, and 15 were over 15 years of age. The average age of the 21 cases under 15 was 4·95 years. The cases were distributed among 22 families. In 12 families single cases occurred, in seven families two cases, in two families three cases, and in one family four cases. Where there was more than one case in a family the living conditions were usually extremely bad as regards poverty and dirt. It is to be noted, however, that children in better class houses, by coming in contact with others at school, also suffered. In one instance the interval between infection of a first case and the development of symptoms in a second member of the same family was 14 days, but more commonly this period was one to three days.

SYMPTOMS

In typical cases the illness commenced with headache, rise of temperature, nausea sometimes accompanied by vomiting and abdominal pains, and followed by diarrhœa, which was the most marked feature in all cases. In the more severe cases the diarrhœa at the onset was described as "continuous" or "every ten minutes" and persisted for a week. In milder cases there were five to six motions on the first day after which the symptoms subsided. The motions usually had a very offensive odour and in most cases were greenish and contained mucus and shreds of membrane. In many cases the information was volunteered that blood was being passed. Blood was present in 21 cases. Sometimes there was a quantity of bright red blood mixed with a watery motion, or the blood was present in streaks with mucus in a semi-solid stool. Most of the patients suffered from abdominal pain usually most severe before the bowels moved, but tenderness on palpation was usually absent. Tenesmus was a feature in a few of the adults. Vomiting, which occurred in 15 cases, was the initial symptom in these and was confined to the first few hours at the onset but did not impress itself on the patient's mind, and was only mentioned when inquiry was made. The tongue was usually coated and pyrexia was present in all the more severe cases, a temperature of 101° F. being common on the first day. There were no deaths and in no case was convalescence prolonged over a fortnight. An interesting feature was the greater severity of illness in the earlier stage of the epidemic, the first few cases being confined to bed for a week or a fortnight, whereas in the later cases this period was only one to three days. The disease seems to have been more severe than in the outbreak recently reported by Cann and de Navasquez (1931) in a hospital nursing staff, but the younger age of the patients may account for the greater severity in the present series. Vomiting as above noted was not a prominent symptom, and the severe diarrhœa with the presence of mucus and fresh blood in the motions indicates a greater involvement of the large intestine than was suggested by Smith (1931) in the epidemic among the boys in Rugby School.

TREATMENT

The cases were isolated in their own homes as far as possible, and instructions given for the disinfection of the fæces. The patients were kept in bed and put on a liquid diet. A dose of castor oil was given at the onset, and this was followed by: tinct. catechu, ʒ iv.; chlorodyne, ℥ xii.; aq. ad ʒ iii., two teaspoonsful every four hours for a child of 5. This quickly checked the distressing depletion and gave relief. The patients were kept in bed until all symptoms had disappeared and those cases which continued to give positive fæces cultures after recovery were given a teaspoonful of magnesium sulphate night and morning.

BACTERIOLOGICAL FINDINGS

The fæces were examined in all cases as early in the disease as possible, and again before the children were

DETAILS OF THIRTY-SIX CASES OF SONNE DYSENTERY

Case.	Sex.	Age in years.	Date of onset.	Vomiting.	Bowel movements 1st day.	Blood in stools.	Fæces culture.	Agglutinins in serum.	Living in same house.
			1931.						
1	M.	28	Nov. 20	–	30	+	Jan. 29 –.	Dec. 14 –.	1 and 4.
2	F.	10	„ 26	+	30	–	Jan. 31 –.	Dec. 16 + 1/320.	2 and 3.
3	M.	72	Dec. 2	–	12	+	Jan. 31 –.	Dec. 16 –.	—
4	M.	23	„ 4	–	24	–	Dec. 5 +, Jan. 29 –.	Dec. 14 + 1/160.	—
5	M.	5	„ 8	+	30	+	Dec. 17 –, constantly +, Jan. 30 to April 11.	Dec. 23 –.	5 and 6.
6	M.	7	„ 11	+	24	–	Dec. 17 +, Jan. 30 –.	Dec. 23 + 1/160.	—
7	M.	11	„ 13	+	24	+	Dec. 15 +, Feb. 4 –.	Jan. 18 + 1/40.	—
8	M.	4	„ 14	–	6	–	Dec. 16 +, Jan. 29 –.	—	—
9	M.	6	„ 17	–	6	+	Dec. 18 +, Feb. 15 –.	Dec. 22 –, Feb. 7 –.	9 and 10.
10	M.	1½	„ 21	–	12	+	Dec. 22 +, Feb. 15 –.	—	—
11	F.	35	„ 26	+	12	+	Dec. 27 +, Feb. 7 –.	Jan. 17 –.	—
			1932.						
12	F.	54	Jan. 3	+	30	+	Feb. 14 –.	Jan. 28 + 1/1280.	—
13	F.	1	„ 4	+	30	+	—	—	13, 14, and 32.
14	M.	52	„ 7	–	30	–	March 1 –.	March 4 –.	Contact with 15.
15	M.	4	„ 10	–	24	+	Jan. 15 –.	—	15, 17, 18, and 19.
16	F.	4	„ 17	–	30	+	Jan. 18 +, Feb. 7 –.	Feb. 5 + 1/160.	—
17	F.	5	„ 17	+	24	+	Jan. 28 –.	Feb. 4 + 1/160.	—
18	F.	8	„ 19	–	24	+	Jan. 20 +, Jan. 28 –.	Feb. 4 + 1/80.	—
19	F.	18	„ 19	+	4	–	Feb. 5 –.	Feb. 4 –.	—
20	M.	6	„ 20	–	30	+	Jan. 21 +, Feb. 11 +, Feb. 21 –, Feb. 28 –.	Feb. 6 + 1/640.	20 and 21.
21	F.	8	„ 23	+	30	+	Jan. 23 +, Feb. 11 +, Feb. 21 –, Feb. 28 +, March 6 –, March 13 –.	Feb. 13 + 1/40.	—
22	F.	23	„ 24	+	12	+	Jan. 25 +, Feb. 15 –.	Feb. 15 + 1/40.	22 and 30.
23	F.	25	„ 25	–	24	–	Jan. 29 –.	Feb. 5 + 1/320.	—
24	M.	37	„ 26	–	4	+	Jan. 28 +, Feb. 15 –.	Feb. 4 + 1/160.	—
25	M.	2	„ 27	–	24	+	Feb. 1 +, Feb. 15 –.	—	—
26	M.	5	„ 28	+	6	–	Feb. 14 –.	Feb. 13 + 1/320.	26, 28, and 29.
27	M.	7	„ 29	–	12	–	Feb. 3 –.	Feb. 15 –.	—
28	F.	2	„ 29	+	6	–	Feb. 3 +, Feb. 15 +, Feb. 21 +, Feb. 28 –, March 6 –.	—	—
29	F.	4	„ 31	+	24	+	Feb. 3 +, Feb. 15 –.	—	—
30	M.	54	Feb. 1	+	4	+	Feb. 1 +, Feb. 15 –.	Feb. 15 –.	—
31	M.	64	„ 2	–	6	–	March 13 –.	March 3 + 1/160.	—
32	M.	3/12	„ 6	–	20	+	Feb. 7 –.	—	—
33	M.	3	„ 15	–	12	–	Feb. 16 +, March 6 +, March 13 +, March 20 –, March 27 –.	—	33 and 34.
34	F.	32	„ 19	–	8	–	Feb. 23 +, March 1 –.	March 1 –.	—
35	F.	25	March 11	–	12	–	March 13 +, March 28 –.	March 26 + 1/320.	—
36	M.	57	„ 13	–	12	–	March 14 +, April 3 –.	April 4 –.	—

allowed to return to school. Cultures were made directly on plates of MacConkey's medium from suspensions of the fæces in broth, and non-lactose-fermenting colonies were picked off for identification by fermentation and serological tests. Both rough and smooth types of colonies of Sonne's bacillus as depicted by Cann and de Navasquez (1931) were commonly encountered. No difference in the fermentation reactions of these two types was noted. For rapid identification by serological methods, sera which agglutinated both types were available. Of 53 cases in which cultural examination of the fæces was made, Sonne's bacillus was recovered from 22. The blood of 28 patients over the age of 4 years was examined for the presence of agglutinins after the first week of illness. All sera were tested with a smooth suspension of Sonne's bacillus and a mixed suspension of Flexner types. Of cases from which the organism had been recovered from the fæces, the serum from ten gave agglutination in dilutions of 1/40 or higher, while six gave negative results. In six cases from which the organism had not been

recovered the serum gave positive agglutination. These findings show that bacteriological evidence of infection with Sonne's bacillus was obtained in 28 cases, agglutination in a dilution of 1/40 or over being regarded as indicating infection.

The irregularity in the development of agglutinins following Sonne infections has been noted by others, and does not seem to depend on the severity of infection, as some of our most severe clinical cases with blood and mucus in the fæces had given positive fæces culture, but showed no agglutinins in the serum in a dilution of 1/20 following the attack. Nevertheless, examination of the serum may be useful in determining the nature of cases in which fæces have not been examined during the acute attack, or when such examination has given negative results as in the six cases noted above.

PERSISTENCE OF THE ORGANISM IN THE FÆCES

Although chronic dysenteric symptoms have been recorded in association with Sonne's bacillus (Sonne, 1915; Channon, 1926; Wiseman, 1927) little information is available about the incidence of carriers. Cann and de Navasquez state that in only one of approximately 100 cases was the organism found longer than three days after the onset of symptoms. Fraser and Smith (1930) recorded that, although the majority of 53 cases in which repeated examination was made were negative within four weeks, one individual gave continuously positive cultures for seven months. While it is true that in most instances the organism disappears from the fæces soon after the acute attack, the examination of our cases during and after convalescence has shown that in a certain proportion of individuals the organism can be recovered for some time after symptoms have disappeared. Of the 22 cases which gave positive cultures of Sonne's bacillus in the present series, the organism was recovered in four cases after 23, 24, 27, and 35 days respectively, while one case, although free from symptoms, has constantly yielded positive cultures up to the present time, 18 weeks after his attack.

The persistence of Sonne infections to the extent of being endemic in a community has been indicated by Fraser and Smith (1930), but the majority of accounts of outbreaks hitherto published in this country suggest that the disease is most liable to occur in sharp outbreaks which, affecting smaller or greater numbers of people almost simultaneously, rapidly subside. The present outbreak is interesting as the method of spread and the persistence of the disease for a few months in a community is unusual. It has been suggested above that infection was spread largely among school-children, although there is no evidence to indicate the primary source of infection. The progress of the outbreak has not been such as to suggest a water or milk-supply as a vehicle of transmission. At the first school where cases were noted it has been usual for the children to consume milk during school hours. This milk is pasteurised, and examination of several unopened samples collected at the school showed that it was perfectly clean in the bacteriological sense and conformed to the standards set down by the Ministry of Health for this class of milk. The disease affected the younger children in the school, and it seems likely that less effective personal hygiene among the younger children was probably a factor in the spread. The continuance of the epidemic over a period of weeks and the development of case-to-case infection in certain families indicate that spread was largely a matter of close contact. Mild undetected cases were probably in part responsible for the dissemination of the disease. While it appears that patients may harbour the organism in the intestine for some time after an attack, in the present instance the convalescent carrier was probably not an important factor, although doubtless chronic carriers may keep infection endemic in a community.

The mildness of Sonne infections is often such that it seems likely to be overlooked unless bacteriological examination of the fæces is made—a point which should be kept in mind in dealing with mild cases of enteritis, particularly in children.

SUMMARY

An extensive outbreak of entero-colitis in an industrial area extending over a period of three and a half months has been described, in which infection seems to have been spread largely by contact among school-children. The disease was in most cases rather mild and no fatal cases occurred.

In 22 cases Sonne's bacillus was isolated from the fæces, and in six others bacteriological evidence of infection was obtained by means of agglutination tests with the patient's serum.

In one case the infecting organism was constantly present in the fæces after clinical recovery and was still found at the last examination made 18 weeks after the onset of symptoms.

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SONNE DYSENTERY IN A YORKSHIRE DALE

BY W. N. PICKLES, M.D. LOND.

A SERIOUS outbreak of diarrhœa and vomiting in three villages of a Yorkshire dale led to an examination of a few specimens of fæces in the pathological laboratory of the Ministry of Health. All the specimens sent, two from each village, were found to contain the Sonne dysentery bacillus, and on this somewhat slender bacteriological evidence it is thought probable that the 120 cases, which occurred within a short time and showed almost identical symptoms, were due to this organism.

Since the early part of November last crops of cases of gastro-intestinal disturbance have been seen, the main symptoms of which were vomiting and prostration, but in which diarrhœa was present in a few instances. One little girl in the last week of November was the first to exhibit symptoms of a severity which suggested dysentery. She was ill for a week with initial temperature of 104° F., vomiting, acute abdominal pain, and frequent bloody, slimy stools. The next cases to be seen personally were on Jan. 4th of this year, when a message was sent from a farm, where a truly deplorable condition obtained. A mother and four young children were prostrate in two beds in one room. The stench was almost intolerable, and the poor victims were lying helpless in their evacuations. One little boy had had a fit, and two others had bled profusely enough to

cause alarm, following green offensive stools. Recovery in all was rapid, and the illness was accepted tentatively as food-poisoning, a diagnosis probably incorrect in view of the large number of cases of a like nature in the succeeding two months. Also it was found that the mother preceded the others by three days, and the fifth child began 36 hours later.

In Dr. T. W. Wade's report [1] of an epidemic of dysentery at Ogmore Vale it is shown that the origin of the outbreak was contamination of the water-supply, although personal contact continued the spread. The epidemic here recorded in none of the villages was of a fulminating nature suggesting water contamination. The first case in every village was known, and there was a gradual rise and a gradual fall in the number of cases, which pointed strongly to a spread of the disease by personal contact alone. The conveyers of the disease from village to village were identified, although all attempts to discover where the disease came from in the first instance have failed.

The last village to be attacked was naturally investigated more completely, 44 cases occurring out of a population of 110. By ill chance the mother of the largest family in the village entertained a sufferer from one of the other villages to tea on Jan. 29th. On the 31st her first symptoms appeared, and between Feb. 7th and 20th her husband and her nine children were successively attacked. Four of these were well enough to attend school, and the epidemic followed on the heels of these cases, being initiated in each household by school-children. No families without school-children were affected, save in two instances, easily traced to a younger child, infected by her elder brother. A visit to the school showed how readily infection could be carried. Forty children attend this school, and there are two privies for the use of each sex. There are two lavatory basins, the use of which is encouraged after defæcation, and two towels, which are changed weekly. Little children in the throes of diarrhœa cannot be expected to be meticulously cleanly in their habits, and the privy seats and the much-used towels would account for a transfer of the organism.

[1] Min. of Health, Rep. on Pub. Health and Med. Subjects, No. 14, 1922.

CLINICAL ASPECTS OF THE DISEASE.

The disease, though in many cases alarming, was not dangerous, and no patient died. The mildness of most favoured the spread, as in the school-children able to attend school.

Diarrhœa was the chief symptom, and as many as 36 stools were recorded in the 24 hours. The stools at first yellow were eventually green, and always most offensive, and blood and mucus were present in all severe cases.

Vomiting was not invariable. In the epidemic recorded by Dr. R. E. Smith [2] in a public school this was often the only feature. If the earlier cases of vomiting and prostration were, as is possible, due to the same organism, they were the only instances of the disease with the absence of diarrhœa.

Abdominal pain was sometimes of great severity, and was referred to the umbilicus and hypogastrium. Tenesmus was frequent.

Fever.—Many of the cases were afebrile, but in the typical severe case the temperature was 102° or even 105° F., but only for 24 to 36 hours.

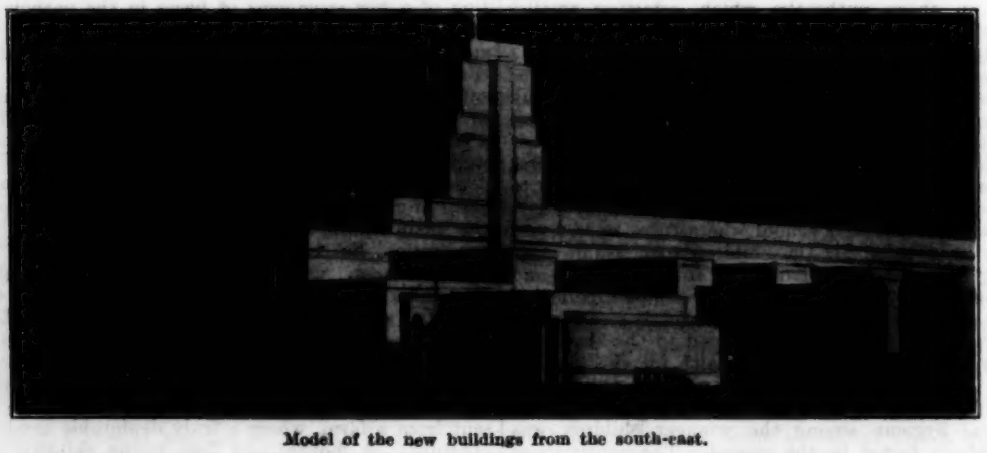
Headache and pain in the limbs were noted, and cough and bronchial signs were present too often to be accidental. Many of the patients were collapsed, and appeared to lose flesh rapidly, and eyes were sunken, the face pale and drawn, and the tongue dry and brown. Tenderness of the abdomen, chiefly on the left side, was observed, and the spleen was palpable in one adult case. Relapses were seen in several cases, and although the acute stage was short, diarrhœa and colicky pains did sometimes persist for two or three weeks.

My thanks are due to Dr. J. A. Glover and Dr. W. M. Scott, of the Ministry of Health, without whose interest in this epidemic and without the facilities afforded by them this paper could not have been written.

Aysgarth, Yorkshire.

[2] THE LANCET, 1931, ii., 925.

THE UNIVERSITY OF LONDON: PROJECTED CENTRAL BUILDINGS



Model of the new buildings from the south-east.

THE illustration is from a photograph of a model prepared from the designs of the architect, Mr. Charles Holden, F.R.I.B.A. The main group of buildings is placed centrally on the site, and the view is taken from the corner of Russell-square, upon which they abut. The base of the tower will serve as the main entrance, while there will be entrances approached from Malet-street on the west and Russell-square on the east.

WHAT IS WRONG WITH THE MEDICAL CURRICULUM?

(A Series of Opinions Contributed by Request)

IV

By A. E. Boycott, D.M., F.R.C.P., F.R.S.

GRAHAM PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF LONDON

I have been a whole-time teacher of pathology to medical students for about 25 years and have had inside knowledge of Oxford, St. Thomas's, Guy's, Manchester, and University College. In the light of that experience, the editor asks me to say freely and frankly what I personally find to criticise in the medical curriculum to-day. My answer is, very little. We must, I take it, judge methods of education by their results, and by that criterion our present system seems to me to work pretty well. It provides on the one hand the man destined for general practice who is a reasonably competent, versatile, self-reliant doctor from the day he gets his name on to the Medical Register and who with a few years' experience becomes at the average the most effective type of professional man in the country and at the best a really remarkable person. Our medical schools have no reason to be disappointed in, still less ashamed of, the great majority of the men they turn out, or so at any rate it seems to me, seeing and hearing of medical practice from almost a layman's point of view. And on the other hand our system provides a due supply of fit persons to carry on the teaching and research which are the components of an education of university standard. At the present time it is, I think, true to say that no young man (or woman) who is qualified by intellect and temperament to follow this line of life will fail to get ample opportunities for developing his particular faculties: the danger is indeed rather the reverse—that incompetent people may be tempted to embark on a career for which they are unsuited, with the inevitable disappointment and waste of failure.

TRAINING IN HUMANITIES

In speaking of medical education as a whole I may seem to be going beyond the province of a pathologist, but I confess that I cannot think about the education of a medical student without looking at it as a whole, especially with regard to what goes on in his last three years. I have particularly in mind his training in the atmosphere and humanities of medicine. Viewing a student's days, a hard-baked organiser would probably comment that he spent a good deal of his time "messing about" in wards and out-patients and elsewhere in hospital and that he could be given at least an equal amount of instruction in much fewer hours by a series of carefully arranged and articulated classes. If that were the only consideration, I should welcome such a change, for it would give time and opportunity for more leisurely and ample courses in pathology in its various branches; which would be not unprofitable. But instruction which can be reproduced at examinations or which enables the student to put through some technical job is very far from being the only consideration, and I entirely agree with my clinical colleagues that the more a student messes about in company with sick people so much the better. He learns in this way a great deal that he needs to know, which is neither in text-books or lectures, and indeed is hardly communicable from one person to another, for it is simply experience of human beings, at their worst and at their best. It is no doubt a good modern move to give students some knowledge of normal and abnormal labour in the carefully controlled wards of an obstetric hospital, but it would be an educational scandal of the first order if this kind of instruction were ever allowed to wholly replace their domestic experience in the district. This humane side of medical education is by the nature of the case difficult to discuss in very precise terms, but it is a part of the curriculum which always needs to be in mind. It is this unorganised and disorderly piece of education which changes average boys and girls (especially, I think, the girls) into excellent men and women, and I feel rather nervous that it may be overlooked if too much attention is paid to organising our arrangements into schedules and time tables.

TECHNIQUE AND CULTURE

Turning now to more academic details, I think the chief difficulty which most teachers feel is to combine instruction with education. A medical school is of course frankly a technical institution: the primary concern of the teachers is, and must be, to train students to be efficient practitioners of medicine, to put them in a good position to prevent, diagnose, and treat disease. But most teachers want to do something more than that: they want to give their students some hints at any rate of the wider fields which form the background of the minutiæ which are immediately under their noses, to give them some idea of how "this splendid and courtly world" is made, and to move their emotions as well as sharpen their wits. There is, I believe, no real difficulty in making a satisfactory compromise between these apparently conflicting ideals and in maintaining the traditional position of medicine as a cultured profession without abating a jot of the thoroughness of the technical training.

THREE CATEGORIES IN PATHOLOGY

My own subject illustrates the difficulties and possibilities as well as any other, perhaps even rather better than most, for pathology covers a wide range and includes at one end empirical laboratory tricks for the diagnosis of disease such as the Wassermann test and at the other some of the largest biological problems such as adaptation or the nature of viruses. Quite roughly it may be divided into three main divisions separated not by differences in technique but by differences in outlook: technology of immediate application (such as finding the cause of a sudden death or discovering the tubercle bacillus), the anatomy and physiology of disease (such as the structure of a cirrhotic liver or the functional failure of nephritic kidneys), and general pathology (such as repair of injured tissues or the relation of disease to evolution). The first is of obvious practical utility, the second may not be absolutely necessary for medical practice though it is not easy to see exactly how this could go on in any reputable fashion without it, the third is an extra which practical instruction can do without and which, in my view, education cannot dispense with. There seems to be an idea about sometimes that these three categories are in some way antagonistic to one another; they are, in fact, complementary. We take for instance our elementary students and we rub into them as thoroughly as may be the truth about diphtheria toxin and antitoxin, how to diagnose and (in theory) how to treat diphtheria, how to do Schick tests and so forth. Technical instruction might stop at that point. But it seems to me necessary to go further

and teach them that *mutatis mutandis* the same facts hold true for many other poisons scattered about through the animal and vegetable kingdoms, some at any rate of which are of no practical importance at all. And to go further still and put before them, for the good of their souls, the generalisation that any mammal or bird will react in the same specific way to proteids from any other species of animal or plant—a conception which is not, I daresay, of the least immediate use in treating any disease. But it would be a shame to let any student go away without giving him the chance of having his emotions stirred by one of the great spectacles of biology. Similarly, the sequence of events which can be seen in a cut finger and culminate in its restoration can be treated as a practical matter so trivial as hardly to be worth notice or as an exquisite illustration of a self-regulating mechanism by which the body heals itself. It should be treated as both: one point of view is not more important than the other; they are, as I said before, complementary not antagonistic. Or consider an ordinary post-mortem examination of a man dead from a cerebral hæmorrhage and granular kidneys. The discovery of the blood clot in his brain will satisfy his relations or the coroner. His fibrous kidneys, arteriosclerotic arteries and hypertrophied heart can, with the greatest educational advantage, be related to the symptoms which he has shown during life. And finally, we can trace through the series of events, beginning with the destruction of some of his kidney glomeruli, by which the body, driven from one defence after another, has finally to take the fatal step of raising general arterial pressure in an attempt to maintain excretion—which is a moving tale of general biological moment.

THE FIRST YEARS

The same difficulty is felt more acutely in respect of the first years of the curriculum, for the subjects of study at that stage comprise relatively few details of practical technical importance. Hence there is a more or less continual cry—perhaps more accurately a mutter—that the medical student is overloaded with scientific instruction which will be of no use to him as a medical practitioner. It does not come from those who have made it their business to be interested in education and it is, I am sure, almost wholly mistaken. It is obviously fantastic to contemplate expunging chemistry or physics or biology or physiology or anatomy from the curriculum altogether; that would be asking people to practise medicine with no more understanding of what they are doing than a bee has in making its comb. These subjects form the essential background which all subsequent instruction must assume to be there. Alternatively it is often suggested that they ought to be taught "in relation to medicine." I am always suspicious when a teacher of one subject begins to tell a teacher of another topic how he ought to do it; it reminds me of the baffled immunologist who complains that the colloid chemist will not solve his problems for him. Still, there may be something in the idea to this extent and to this extent only—that a teacher of botany, for example, with two equally suitable examples to his hand to illustrate a principle may properly choose the one which will crop up later on in pathology or medicine rather than the one of which the student will never hear again. I doubt whether this change would entail any serious divergence from present practice. But something much more sinister is, I fancy, involved in the proposed alteration, which would amount to the chemists teaching pharmacology, the physicists radiology, the anatomists surgery, and the physiologists general pathology. My objection to such an arrangement is that the various teachers concerned are incompetent to undertake it. It is most desirable that the subjects in the medical curriculum should overlap, but I am sure that the overlapping should be from above downwards and not from below upwards. Those who teach the later subjects necessarily have some knowledge of those which come earlier in the succession. Those who teach the preliminary subjects are, more likely than not, almost completely ignorant of the final studies. To "reform" the scientific years of the medical curriculum along these lines would, in my opinion, turn them into a travesty of education without effecting any improvement in instruction. I sometimes find that someone in the school of preliminary or intermediate studies has been teaching my elementary students about immunity. This always irritates me because, without forming any opinion about the quality of the instruction, I always find that the students have got hold of the wrong end of the stick. What I need for my own teaching is that, if I have occasion to refer to something chemical or botanical, or physiological, my students should have some notion of what I am talking about. And what is of pathological interest in these other sciences, only a pathologist can tell.

CURRICULUM IS A SKELETON FRAMEWORK

Surgeons and psychologists have said that the precise technique of trying to heal a wounded body or a broken spirit matters a good deal less than the sincerity and consistency with which treatment is applied. The same is, I think, true of education. The house a man lives in is of less importance than how he lives in it and the house we have is good enough. The curriculum after all is only a skeleton framework to keep things tidy and in decent order and to secure that the broad principles of university education should be maintained. The important thing is that we teachers and students should live as well as we can within that framework and not attribute our own deficiencies to its supposed faults. And just as it is rather difficult to get on with what matters in life when the builders and painters are about, so I think we should do best to leave the present curriculum alone for a while and look, each of us, into the spirit in which we teach and learn. As to the teachers, sincerity, personality, and scholarship are what matter and perhaps they come in that order; if a man has no fire inside him for his own comfort, he is not likely to rouse much warmth in his students. Perfunctory and cynical teaching, of which there used to be a fair amount in the medical course, are useless, and in this respect there has been a great improvement in recent years. The introduction of whole-time clinical departments may not have done exactly what was expected but, as I have seen it in operation, it has brought about an invaluable change of atmosphere. As to the students, I would venture only to say that they might bear in mind more often than they seem to that God sells knowledge for sweat.

NO SUBSTANTIAL FAULTS

Personally therefore I see no substantial faults in the curriculum. But I should be sorry if that was taken to mean that I am satisfied with all the details of our medical education; I hope no teacher is ever in that fatuous state. I should, for example, be very glad if the larger schools in the university could have internal examinations in all subjects, in which each teacher, with an external examiner, deals with his own students. The advantages of the method

are much more obvious to those who have experienced it than to those who have not, and, without discussing it in detail, I would mention only that it enables each school to develop, if it will, some sort of individuality in its teaching. It is not a question of the structure of the curriculum but of freedom of spirit for those who teach in it and, within certain limits, freedom of action. In pathology, the only serious need of which I am aware is the proper training of graduates in clinical pathology; it will, we may hope, be undertaken by the new school at Hammersmith, but it is a matter which hardly comes within what is generally called the medical curriculum.

HOSPITAL OUT-PATIENT DEPARTMENTS

THEIR USE AND ABUSE BY PANEL PATIENTS

King Edward's Hospital Fund has recently received two memoranda of evidence on the problem of the out-patient, which was the subject of a special report to the Representative Body of the British Medical Association last year.[1] The first document is from the Panel Committee for the County of London, representing about 2250 practitioners responsible for the treatment of some 1,900,000 patients.

This body expresses itself in the first place as in substantial agreement with the opinions of the British Medical Association. Having described briefly the system of National Health Insurance, the memorandum declares that a second opinion or consultation should be available for a panel patient in exactly the same way as it is for any other kind of patient, and that in this direction the hospitals are providing services which are very highly appreciated. The memorandum recognises that the second opinion may be of the greatest value both to the patient and to his doctor, provided the patient takes with him a letter from the doctor giving the history and previous treatment. The provision of this letter would also save the consultant a great deal of time, and obviate repetition of treatment that had already been tried. The Committee maintains that the great majority of practitioners only send cases to hospital when they want a second opinion, and that they send notes with them. It confesses, however, that there are exceptions, and that some patients come up from their doctors with no note, or with a visiting card only, and that this course is occasionally adopted by the medical man in order to shelve his responsibility. The Committee deprecates this practice, and also strongly disapproves of the attendance of panel patients at hospital on their own initiative; it believes that the majority of panel patients who appear in the out-patient department without any form of introduction have in fact come without their doctor's knowledge. It points out that hospitals are intended to provide treatment for those who cannot get it elsewhere, and that it is not right for them to have to provide services which the panel practitioner is quite competent to give. It maintains that the hospitals themselves contribute to this undesirable state of affairs; patients, staff, and students are allowed to continue working on the wrong lines, and successive batches of graduates emerge with erroneous ideas on the extent to which medical advice is available outside the hospitals.

[1] THE LANCET, 1931, ii., 189, 241.

The memorandum then deals with various reasons which have been brought forward to account for the independent attendance of panel patients at hospitals. It maintains that a doctor whose patient does not respond to treatment will always be willing to get further advice and to carry out any treatment suggested by a consultant. To the complaint that the patient is not able to change his doctor easily when he is dissatisfied the Committee replies that consent to transfer is nearly always given and that in this case there need be no delay; at the same time it acknowledges a wish that the panel patient had as free a choice of doctor as the private patient. It does not consider that the panel doctor is ever likely to be unavailable when wanted; apart from the regulations, it is obvious that availability is one of the factors that makes a doctor popular. The memorandum emphatically denies the suggestion that the doctor may be too busy to give his patient proper care. The limitation of the lists is one factor, while another is the obvious tendency of patients to leave the list of a doctor who is in fact too busy to look after them as they wish. Crowded conditions are found to-day, it says, not in the doctor's surgery but in the hospital out-patient department, and even if the surgery is crowded the doctor has the great advantage over the hospital staff of personal knowledge of his patients and his patients' homes.

THE TREATMENT OF MINOR AILMENTS

It has been argued that the presence of a certain amount of minor illness is necessary in a hospital in order that the students may learn its diagnosis and treatment. To this argument the Panel Committee retorts that there is no evidence that recent graduates have learnt anything of any use to them in their study of minor ailments! For one thing, the department is often so crowded that the student is unable to secure any personal teaching on individual cases; secondly, the department is all too often administered by very junior members of the staff; and finally, if the student does learn to treat minor ailments, he learns to treat them by what the memorandum calls "hospital methods," methods which involve such extravagance that they are entirely useless to the practitioner in private work. The Committee agrees that this is a regrettable state of affairs, and supports the British Medical Association in its contention that the student would get more benefit from the careful study of a small number of cases under the direction of a physician or surgeon who is not working against time.

The memorandum points out the obvious fallacy in the suggestion that better treatment is to be obtained from a junior member of the hospital staff than from a general practitioner; the general practitioner is only the junior member with a few more years' experience added to him. The Committee finds it difficult to see how this kind of hospital treatment can be of more benefit to the patient than the continuity of observation and treatment that he can obtain from his own doctor.

The Committee agrees with the British Medical Association that treatment of genuine emergencies is one of the legitimate functions of the out-patient department, but that there is no need for the patient to continue to attend hospital for dressings. It also points out that if the patient was well enough to leave home for work in the morning, there are very few medical or gynæcological emergencies that are likely to make it necessary for him to need medical attention before he returns home.

SUGGESTED IMPROVEMENTS

The memorandum urges the provision of clerical assistance for physicians and surgeons, so that the practitioner can be sent a diagnosis and an indication for treatment. It suggests that the extra expense would be balanced by the reduction due to the smaller number of out-patients. Possibly also the practitioner might be provided with a form on which to send particulars of his case; such a form has been in use for some time by the London Public Medical Service, and the Panel Committee is considering the introduction of a similar one for the use of panel practitioners.

The memorandum frankly ascribes the crowded condition of out-patient departments to the failure of hospitals to make any effort to keep the numbers down. Large figures of attendances are supposed to have a sentimental appeal to the public; and it is often easier on a busy morning to tell the patient to come again in a week than to refer him to his own doctor. Moreover, the practice of supplying large quantities of medicine attracts patients, although the mixture which they carry home is very much the same as that which they would have obtained—less diluted—from their own doctors. The patient, however, compares the smaller bottle unfavourably with the more bulky, and concludes that hospital attendance means more and better medicine. The Panel Committee believes that such methods of gaining popularity belong to the past. It concludes that the present position of out-patient departments is unsatisfactory and unbusinesslike, and wonders why hospitals continue to treat at a loss cases which could be treated with equal efficiency at a profit by general practitioners.

Views of the London Public Medical Service

The committee of management of the Public Medical Service for London has also presented a memorandum to the out-patient committee of the King Edward's Hospital Fund. It declares that dependants of insured persons and others in a similar economic position find it difficult to obtain adequate medical attention. Clubs, dispensaries, and out-patient departments do not solve the problem satisfactorily. Clubs are often regarded as providing only a minimum of medical attention and that in a semi-charitable form, while out-patient departments do not provide treatment in the home. The London Public Medical Service, which was started in 1926, now has 13,500 subscribers and the scheme is being worked by 425 doctors. The weekly subscriptions are 4*d*. for one, 8*d*. for two, 11*d*. for three, and 1*s*. 1*d*. for four or more in one family. The service provided is the ordinary general practitioner treatment, with advice on infant welfare, and introduction to a hospital consultant when required. The patient who goes to hospital takes with him a special form filled in by his general practitioner. The Committee holds that continuity of observation and treatment—such as can only be provided by a family doctor—is of the first importance, and that it is essential to offer the doctor an adequate remuneration.

The committee of management is certain that many cases attending out-patient departments could be advised by their family doctor, and that out-patient departments in this way waste time and money. One of the difficulties for the non-insured person was that he or she could not always afford to have a family doctor; this difficulty the London Public Medical Service has now removed. It suggests that any hospital which really wanted to relieve its out-patient department would be glad to bring the Service to the notice of its patients, but it has not up to the present found any hospital willing to take steps in this direction. The Committee, as a result of information from many sources in all parts of London, finds itself obliged to declare regretfully that hospitals are interested in one thing and one thing only, so far as their out-patient departments are concerned: in keeping up the number of attendances, and this not for any reason connected with the welfare of the patient. The London Public Medical Service suggests that it has already contributed something to the problem of the out-patient, and will do anything that lies in its power to help in the further solution of the matter.

MEDICINE AND THE LAW

The Dog in the Car

MOTORISTS who are also dog-lovers have to thank the persistence of a medical practitioner for a helpful decision of the Court of Appeal. The facts of the case were described in these columns when the result of the High Court proceedings was recorded.[1] Dr. Bernard Ley left his car outside Queen's Buildings in the Borough. Inside the car was his Sealyham terrier, so tied up that its muzzle could protrude only three inches beyond the car door. A little girl ran into the street, went to the car and leant over; the dog snapped at her and bit her, and her father claimed damages. The jury failed to answer various questions put to them by Mr. Justice du Parcq—whether the dog was of a ferocious disposition; if so, whether Dr. Ley knew of its ferocity; whether he was negligent in leaving the dog so tied up; and whether his negligence caused the child's injuries. All the jury could say was that there was no contributory negligence on the child's part. In this deadlock the jury declined to give judgment for Dr. Ley but ruled that the action must remain as one in which the jury has been unable to agree—in other words, the plaintiff could begin the case all over again. The Court of Appeal has taken a different view and has held that Dr. Ley is entitled to judgment. Lord Justice Greer says Dr. Ley was entitled to leave the terrier in his car for the reasonable protection of his car when, according to the needs of his business, he had to be absent, provided that he took reasonable steps to protect those who were entitled to use the public highway. Not only had Dr. Ley fastened the dog inside the car; he had also warned the children to keep away from it.

Legally, as Lord Justice Scrutton had pointed out, a dog is not classed as a ferocious animal; a dog-owner is not liable in damages unless the dog has to his knowledge acquired some vicious habit or propensity of which he is aware. That being the position of the law in the case of a dog loose upon a highway, how much more must the owner be protected from liability if he has confined his dog inside a vehicle so that it cannot get at anybody unless interfered with. The child brought the injury on herself. There was no evidence, said the Lord Justice, on which the jury could give answers which would make Dr. Ley liable; the defendant was consequently entitled to judgment. The Court of Appeal, it seems, was invited to give a ruling as to the right of a car-owner to leave in his car a dog known to be dangerous. The Automobile Association and the police, it was said, would like to know how such a man stood. But it is not the habit of English judges to answer abstract questions.

[1] THE LANCET, 1932, i., 1006.

Lord Justice Scrutton drily observed that the Court would give its ruling when the Automobile Association and the police produced the appropriate case.

"Accident" and "Sickness"

Persons employed by coöperative societies work under a contract which includes a clause for "wages during sickness." A man thus employed injured his thumb in an accident and claimed wages under the clause. His employers were willing to admit liability under the Workmen's Compensation Act but refused to pay under the wages for sickness clause; they said that accidents ought to be dealt with by compensation under the Act, and they pointed to section 1 (3) of the Act which declares that the Act applies notwithstanding any contract to the contrary. The county court judge held that "sickness" meant a condition due to illness from disease or natural causes and not a disablement due to accident. The High Court has decided that this is the wrong view. Mr. Justice Macnaghten quoted the words "in sickness or in health" from the marriage service, and said they were complementary and covered the whole life of the spouse. Sickness, he thought, meant any morbid condition without regard to the cause of it.

Spectators' Risks

The physical risks of spectators may be serious—for instance when, as in a case lately before the Court of Appeal, two racing cars collide on the Brooklands track and one of them leaves the track and strikes a looker-on. The jury exonerated the drivers of the cars from any negligence but awarded £988 damages against the Brooklands Club on the ground that the club had negligently failed to exhibit warning notices, to raise the height of the barriers in view of the increased speed of cars, to keep spectators at a safe distance, and so on. The Court of Appeal has allowed the club's appeal. Lord Justice Scrutton says that, if people pay to witness an entertainment, it is an implied term of the contract that there is no obligation to protect them against a danger incident to the entertainment which any reasonable spectator foresees and is content to risk. The cricket-ball which lands in the pavilion at Lords, the sliced drive at a golf championship, the rider who crosses the boards at a polo match—these are incidents against which a spectator does not expect structural protection. A defective structure is another matter. Plaintiffs have recovered damages where a stand has collapsed because it was negligently constructed. But here again, in respect of the risks of the place, apart from the risks of the entertainment, the spectator must put up with a good deal. If he catches cold on an uncovered stand exposed to a bitter east wind, it is an obvious risk which he is deemed to have accepted.

Bogus Doctor and Bogus Priest

Earlier proceedings against William Faulkner, alias Norman Nelson Kirkup, were mentioned in THE LANCET of April 2nd (p. 746). He was brought to England from Singapore after obtaining a post with the British North Borneo Company by posing as a doctor; he had previously held a medical post at a Bristol Mental Hospital, though not qualified. Faulkner was charged at Wells Assizes on June 7th with obtaining £68 from the Borneo Company by false pretences, with bigamy, and with obtaining a cheque for £80 by false pretences from the father of the bigamous wife. A police inspector stated that Faulkner had preached in various churches and had conducted services for the burial of the dead; a surplice, cassock, and hood were found among his belongings. Counsel for the prosecution said the accused had proposed marriage to a schoolmistress in Devonshire who accepted him, believing him to be a doctor. After obtaining her father's consent, he borrowed money from him for the purpose of his wife's return passage from the East. After Faulkner had left for the East, it was found that he already had a wife and child; he had had an interview with his legal wife a few days after the bigamous marriage. Mr. Justice Avory passed sentence of five years' penal servitude.

Professional Guarantees

The Law Reform Association advocates, among other proposals, a collective guarantee by solicitors against the misconduct of any member of their profession. The Association draws attention to the recent conviction of a solicitor at the Old Bailey who had defrauded a doctor of £1150. The doctor had entrusted him with £1200 for the purchase of a practice; the negotiations, it is said, fell through, and when the doctor demanded his money back the solicitor said he had spent it all except £50. In New Zealand, the Association points out, solicitors have set up a collective Guarantee Fund so that business with a New Zealand solicitor is conducted with absolute safety. The medical profession, it is suggested, should urge its spokesmen in Parliament to press for a similar reform in England; meanwhile all securities should be prudently kept at a bank rather than in a solicitor's office.

It cannot be said that the legal profession has ignored the problem. In July, 1930, two Solicitors Bills were introduced into Parliament with support from prominent members of the legal profession. Public opinion was not greatly stirred and little progress was made either then or in the following year. Sir Assheton Pownall's Bill proposed to make solicitors bank clients' money in a special "clients' account"; drawing on that account was to be regulated, and all solicitors were to keep proper accounts. Sir Dennis Herbert's Bill went further and proposed the formation of a relief fund from which the Law Society could make grants to persons injured by a solicitor's default. The difficulty is that the Law Society, though admirably equipped to cope with the situation, does not include every solicitor among its members; it would first be necessary to make every solicitor join the society and contribute a fee by means of which the relief fund could be created and maintained. Meanwhile if the medical profession should be too provocative in its desire to reform the solicitors, the latter may reciprocally invite the formation of a medical guarantee fund to compensate the relatives when a patient fails to recover. At present medical practitioners are mainly concerned to subscribe to defence funds to protect themselves from the hazards of allegations of negligence.

Mrs. Cull's Action against the Royal Surrey County Hospital

The Lord Chief Justice gave judgment on June 24th in the action brought by Mrs. Cull against the Royal Surrey County Hospital and Mr. H. B. Butler, recorded in these columns last week. Mrs. Cull had been awarded £120 damages for negligent breach of contract on the part of the hospital authorities; against this, the committee of management had paid into court the sum of £75. She now obtains judgment against the committee, and receives the £75 in part satisfaction. The trustees of the hospital are ordered to pay the balance of the award of damages, and also to pay her costs of the action. Mrs. Cull had been awarded

¼d. damages for trespass to the person by Mr. Butler, who, as previously explained, had performed an operation to which she had not consented. Mr. Butler had paid £25 into court, but did not ask for the costs to which he would ordinarily have been entitled. Mrs. Cull obtains judgment for her ¼d. as against Mr. Butler, but without costs; he receives back the £25 which he had paid into court in advance of the hearing and which Mrs. Cull, hoping for a larger award of damages against him, omitted to take out of court in settlement of her claim. This somewhat complicated judgment was in the form of an order previously agreed by the parties' legal advisers, and assented to by the court. All parties agreed that there should be no appeal against the order. Lord Hewart, in giving his consent, said he was sorry to have missed an interesting and informing legal argument on the effect of the jury's answers in relation to the payments into court. But, he added, what has taken place is much better.

THE TREND OF DISEASE

REGISTRAR-GENERAL'S REVIEW

WITH the issue of the text volume [1] the Registrar-General of England and Wales completes his survey of the vital statistics of 1930. The tables of data upon which this report is based have already been issued in their customary two parts, medical and civil.[2] The present volume is not only an official commentary in which the main features of the year are outlined, but contains a further, and often detailed, analysis of the tables previously published, so that the trend of the public health can be clearly followed both in recent and more distant years.

Comparison reveals a noteworthy stability of the death-rate in the last three quarters of the year. During the last ten years the average mortality in these three quarters has fluctuated by less than 1 per 1000, while the death-rate in the March quarter has ranged between 13·2 and 20·9 per 1000. Should these tendencies continue, the mortality experienced in the March quarter will largely determine the death-rate for the whole year. Actually in the year under review the relatively mild weather in the first quarter, combined with an absence of influenza, produced the lowest crude death-rate yet recorded (11·4 per 1000).

MORTALITY OF INFANTS AND CHILDREN

A remarkable seasonal change is also to be observed in the infant mortality-rate. Until 1901–05 the hot summer months levied the highest toll on infant life. Since the beginning of the present century the infant death-rate has fallen in each successive quinquennium, but with great inequality. Comparing 1926–30 with 1896–1900 the fall in this death-rate was 36 per cent. in the March quarter, 52 in the June, and 53 in the December, and no less than 75 per cent. in the September quarter. This precipitate decline, due in a large measure to the fall in the mortality from epidemic diarrhœa, has so reduced the mortality in the third quarter that it now yields the *lowest* quarterly rate, while the March quarter, with its slower rate of decrease, yields the highest. The infant mortality-rate for 1930 of 60 per 1000 live births is the lowest level yet reached, but the statistics of the last few years suggest that the rate of decline is slackening, and any further fall in future years is likely to be at a decreasing rate. The present decline applies to all stages of infancy, except the first day of life, at which period the rate has remained stationary for three years. The decline of the mortality during the first week of life was only 10 per cent., and it seems probable that the high proportion of deaths at this age of non-viable infants with but little prospect of surviving birth renders the mortality less susceptible to the influences and efforts which have effected the substantial reductions at later periods of the first year. The separate tabulation of deaths registered as occurring within 30 minutes of birth displays in 1930 the same startling differential incidence upon the illegitimate as in 1928 and 1929, especially so far as those causes of death are concerned, which imply, or are likely to mask, the operation of violence or neglect. For violence and lack of care as a whole, a rate of *6266 per million* for illegitimate infants compares with one of 78 for the legitimate. Amongst the causes of infant death, congenital malformations is steadily increasing in importance, its mortality having risen year by year from 4·16 in 1923 to 5·27 per 1000 births in 1930, an increase which is apparent in all administrative sections of the population to much the same extent. Further analysis of these deaths shows curious regional variations in the deaths from spina bifida, which are not present in deaths from other malformations, London having a considerably lower, and Wales and the north a considerably higher proportion than the average.

At the susceptible ages of 1–5 years the favourable weather conditions in 1930 operated in decreasing mortality from 10,677 per million in 1929 to 6872, or by 36 per cent., the main causes being respiratory. Measles was the only cause showing an appreciable increase (18 per cent.), and this excess occurred chiefly in London and the south.

VARIOUS DISEASES

On specific causes of death the report furnishes its usual mass of information. *Enteric fever*, the pièce-de-résistance of the public health worker, showed a standardised rate of only 7 per million persons living (the lowest yet recorded), compared with the 371 per million 50 years ago.

Of *cancer* it is important to note that standardised death-rates show that the increase in the mortality has been arrested, the male rate having remained stationary, while that for females shows an actual decrease. In the corresponding text volume for 1925 attention was directed to the absence of seasonal variations in the mortality from cancer. This is further exemplified by the experience in the March quarters of 1929 and 1930, when, notwithstanding the widely different meteorological conditions, the deaths were almost equal. Comparison of the three decennia, 1901–10, 1911–20, and 1921–30, shows that cancer mortality has risen during the present century by 28 per cent. for males and 5 per cent. for females (crude death-rates show a much higher rate of increase, and emphasise the need for taking into account the rapidly increasing proportion of elderly persons in the population). The rapidity of the increase in cancer of the lung "suggests improved means of diagnosis." On the other hand, a distinct fall is noted in mortality from uterine cancer between 1911–20 and 1921–30. No other site of similar importance shows such a decline for either sex. Improvement in treatment may well be a factor of special importance, but as mortality is consider-

[1] The Registrar-General's Statistical Review of England and Wales for the year 1930 (New Annual Series, No. 10). Text.
[2] THE LANCET, 1931, ii., 1250, 1309.

ably higher for married than for unmarried females, the increasing numbers of non-parous women among the former, consequent on the declining birth-rate, may also have contributed to the decline.

The standardised death-rates for *diseases of the respiratory system* are the lowest yet recorded for either sex. As usual, the mild climatic conditions influenced the male mortality less than the female.

As regards *puerperal mortality* the rate for 1926–30 is higher than that recorded in the three preceding quinquennia. It should, however, be remembered that the risk of death is greater for primiparæ than for multiparæ. The increase in the proportion of first-born children therefore tends to raise the crude puerperal mortality, expressed as a simple ratio of deaths to births, and so must mask any reduction which may have resulted from maternal welfare schemes and other national and local efforts to reduce the risk of childbirth. Whether this factor is of major importance is doubtful. The assertion commonly made that the increase in mortality from puerperal sepsis may be due to increase in the proportion of deaths from septic abortion is not supported by the statistics available. The more favourable position of London with regard to non-septic causes can without doubt be related to the more adequate provision of lying-in accommodation in its many hospitals and other institutions. A substantial reduction in the present abnormally high mortality in the north and in Wales might reasonably be expected to result from an increase from such facilities for skilled attention and nursing during pregnancy and the puerperium.

These represent some of the many statistical problems skilfully and interestingly handled in this report. There are very many others.

INTERNATIONAL VITAMIN STANDARDS

THE enclosed statement has been received from the Department of Biological Standards, Medical Research Council. It has been prepared with the object of making known that the international standards for the vitamins A, B_1, and D, recently adopted by the Health Organisation of the League of Nations, are now available for research workers, laboratories, and institutions in Great Britain and Ireland.

In June of last year, under the auspices of the Permanent Commission on Biological Standardisation of the Health Organisation of the League of Nations, a conference of experts was held in London with the object of discussing the possibility of adopting standards and defining units for certain of the vitamins. As a result of their deliberations, the conference made a series of important recommendations to the Permanent Standards Commission, and these are set out in the report (No. C.H. 1055 (1)) recently published from Geneva. Briefly, the conference recommended the adoption of a standard, and the definition of a unit in terms of such standard, for the four vitamins A, B_1, C, and D. The conference further recommended that in the case of the two vitamins, A and D, the final preparation of the standard should be undertaken by the National Institute for Medical Research, Hampstead, and that the standard for vitamin B_1 should be prepared in Java. The National Institute at Hampstead was further nominated to act, on behalf of the Health Organisation of the League of Nations, as the central laboratory for the storage and distribution of the three standard preparations for vitamins A, B_1, and D. In the case of vitamins A, C, and D, it was recommended that the proposed standards and units should be adopted for a period of two years in the first instance, the standard for vitamin B_1 being given a preliminary currency of five years. In the case of vitamin C no preparation or storage of a stable standard was involved by the recommendation of the conference which was satisfied, for this vitamin, to recommend the use of fresh lemon juice as a standard, and to define the unit as the antiscorbutic activity of 0·1 c.cm. of the juice, prepared according to a simple method described in the report.

VITAMIN A

Carotene was recommended as the international standard for vitamin A, and the unit was defined as the vitamin A activity of 1 gamma (0·001 mg.) of the standard preparation of carotene. Eight laboratories have contributed varying quantities of carotene, and these have been mixed at the National Institute for Medical Research; the mixed carotene has been purified by recrystallisation until the melting point was above 179° C. The highly purified preparation has been distributed in 10 mg. quantities into small ampoules in an atmosphere of pure nitrogen, reduced to dryness, and the ampoules sealed.

VITAMIN D

With regard to the international standard for vitamin D, the conference recommended that the standard solution of irradiated ergosterol, which has been issued from the National Institute for Medical Research, Hampstead, for the past two years (see THE LANCET, August 30th, 1930, p. 503), should be adopted as the international standard. On account of the fact that this standard preparation had been intended, primarily, for the needs of this country alone, it was considered desirable to prepare a larger quantity to meet the needs of other interested countries—19 in all—for a period of some years. Accordingly, a second and larger quantity of irradiated ergosterol has been prepared at the National Institute for Medical Research, and this has been assayed in terms of the original standard preparation. The comparative examination of the new and the original standard preparations has been carried out by eight different laboratories in five different countries, and these eight groups of workers are unanimous in agreeing that the new standard now available is exactly equivalent to the original standard. There is, accordingly, now available an adequate amount of this standard preparation of vitamin D to meet the requirements of all workers throughout the world for some years to come. The unit recommended for international use is defined as the vitamin D activity of 1 mg. of the international standard solution of irradiated ergosterol.

VITAMIN B_1

The standard for vitamin B_1 recommended for international adoption is a concentrated preparation of the antineuritic vitamin B_1, adsorbed on kaolin. The standard has been prepared in the Medical Laboratory, Batavia, Java, and is stored at the National Institute for Medical Research, Hampstead, from which it will be distributed. The international unit has been defined as the antineuritic activity of 10 mg. of the international standard preparation. The standard preparation is very stable and, provided it is protected from moisture, appears to retain its activity unchanged.

In the case of other countries, arrangements have been made to send suitable supplies of each of the above standards to approved national institutions for local distribution.

Institutions or individual investigators in Great Britain and Ireland, who wish to obtain supplies of one or more of these standards, should apply to the Department of Biological Standards, National Institute for Medical Research, N.W. 3, from which issues will be made at regular intervals.

EPSOM COLLEGE

THE seventy-ninth annual general meeting of the governors of Epsom College was held at the London Office, 49, Bedford-square, on Friday, June 24th, 1932. Dr. Raymond Crawfurd, chairman of the Council, announced that the scheme to abolish voting and to substitute therefor the election of foundationers and pensioners by a selection committee had received the Royal Assent. He reminded the meeting that 93 per cent. of the governors had been in favour of this move, which would have beneficial effects not only on the Foundation but also on the school. Another result of the passage of the scheme through Parliament was that medical women and their sons were now equally eligible with medical men and their sons to receive the benefits of the Foundation. He said that in order to assist parents as far as possible during the present period of stress the Council had decided to award two open entrance scholarships annually of £100 each, in addition to two open scholarships annually not exceeding £60 each. They had awarded five open scholarships this year, where there were only two vacancies, and he announced, to the great approval of everybody present, that the Council had also decided to educate and maintain this year two additional foundationers, bringing the total up to 52. He added that the Council had decided to commence work right away on the building of a new block containing biological laboratories and museum, feeling that the subscribers would agree with the determination to provide at Epsom the highest facilities for the study of a subject which was daily increasing in importance.

PENSIONERSHIPS

The following were the successful candidates :—

*Coombe, Dr. Thomas S.	*Drummond, Mrs. Ellen.
*Ashton, Mrs. Charlotte R.	†Hine, Mrs. Emily.

* Ordinary pensioners. † Pugh pensioner.

At the Council meeting, which will be held on July 6th, 1932, Dr. Archibald J. Campbell will be appointed a "Christie" pensioner, Mrs. Mary V. Knight will be appointed a "Highett" pensioner, Mrs. Lowiny I. Addison will be appointed an ordinary pensioner, and Mrs. Louisa Knox will be appointed a "Pugh" pensioner, vacancies having arisen. Two other pensionerships will also be awarded.

FOUNDATION SCHOLARSHIPS

The following were the successful candidates :—

Harty, Desmond I.	Prentice, John R.
Archibald, Roy McL.	Todd, Kellingworth R.
Wilman, Peter N.	*Hancock, John W.
Cotes, John C. D.	*Fairhall, Christopher H.
Pim, John A.	

* Additional scholarships granted by the Council.

OFFICERS OF THE COLLEGE

The following members of the Council were re-elected for a further period of three years: Dr. H. W. Armstead, Mr. D. C. Bartley, LL.B., Sir John F. H. Broadbent, Sir Ernest Goodhart, Mr. A. C. C. Parkinson, Dr. Harold Spitta, Sir StClair Thomson, Mr. W. Cyril Tomlinson, Mr. T. Hollis Walker, K.C., and Dr. W. Essex Wynter. Mr. Ronald Cove-Smith was elected a member of the Council.

Colonel Norman C. King and Mr. P. D. Leake, F.C.A., were re-elected auditors, and Mr. Horace H. Rew was elected an auditor in the place of Sir Frederic G. Hallett, retired.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE NEEDS OF IRISH HOSPITALS

THE report of the committee of reference appointed by the Minister for Justice, to advise him as to the distribution of the proceeds of the sweepstake on the Manchester November Handicap, was published last week. There has been some grumbling as to the delay in issuing the report, but no one who reads it will think that the committee has taken too long in making the careful study of which it gives evidence. Not only had the committee to arrive at what seemed an equitable principle of distribution, but it had to visit and examine the circumstances of each participating hospital, and scrutinise its claims and needs. Further, and this is by no means the least important part of its work, although only indirectly connected with its main duty, the committee thought it proper to make some general observations and comments on the Irish hospital system. In the course of their work the members visited 45 institutions, inspected the premises, fittings, and equipment, and obtained full information relating to the management and financial position of each. They discussed all matters relating to the needs and circumstances of each hospital with the governors, committees of management, medical officers, and nursing staffs. The proposals and architectural plans were examined and criticism offered where necessary. After mature consideration the committee decided that the only equitable division of the available funds that it could devise should be based on a computation of the *total* financial needs of each hospital. These needs were arrived at by a consideration of the several claims under the following heads: (*a*) Repayment of loans, including bank overdrafts; (*b*) building works, including mechanical plant, cost of site, and professional fees; (*c*) furniture; (*d*) medical, surgical, and pathological apparatus; (*e*) investment for endowment purposes. These were considered in relation to the needs existing prior to the sweepstakes, and, in the case of hospitals which had already received amounts from previous sweepstakes, such amounts were deducted from the total awards in order to arrive at the present total needs. The total "awards" approved by the committee came to £5,256,964, from which a sum of £1,270,022 is deducted in regard to receipts from previous sweepstakes, leaving £3,986,942 as the total "award" from the November sweepstake.

The term "award," as used by the committee, requires explanation or it may lead to misconception. What the committee has done is to decide on the sum actually needed by a hospital for purposes approved by the committee. This sum, called "the award," has been reached by pruning, or in a few cases increasing, the claims submitted by each hospital. But although spoken of as "an award," this sum is not at all the actual amount which will reach the hospitals from the Manchester November Handicap. It is the amount which the committee would be willing to recommend as a grant if there were unlimited funds at the Minister's disposal. The actual surplus available from the November sweepstake will be about one-eighth of the sum nominally "awarded."

The general observations and criticisms on the Irish hospital system are valuable, although the committee makes no claim to have studied the question except in so far as was necessary to guide

it in its primary duty. They are, therefore, to be regarded rather as impressions made as a body of observant men of affairs, rather than as considered conclusions. The committee notes that in many of the claims submitted to it there was an acute lack of appreciation of the proper lines of hospital development in relation to the social and community needs. There was, in fact, lack of a unified policy between the voluntary hospitals and between the general, special, poor-law, and fever hospitals. There was inadequate provision in certain areas for pædiatrics, for obstetrics, for orthopædics, for fever cases, and for middle-class patients. There was incomplete clinical recording. There was an absence of "follow-up" system, and inadequacy of hospital social service. Although there was a general demand for increased bed accommodation, no survey had been undertaken to find a working basis on which to estimate the number of hospital beds required in any particular area. The committee stresses the need for a thorough survey as a preliminary to a sound scheme of hospital development.

The committee refers only in passing to the question of amalgamation of hospitals, remarking that there are few advantages in amalgamation which could not be gained by effective coöperation. Attention is drawn to the lack of interest in research shown by many of the hospitals. The hope is expressed that steps should be taken to establish a coöperative scheme of research, with a suggestion that in future awards the committee would encourage such a scheme by financial help.

The committee emphasises the necessity of provision of hospital treatment for middle-class patients. It is evident, it is said, that the hospitals must be prepared to provide accommodation at a reduced cost to all classes of patients.

The report will, doubtless, give rise to criticism on many points, but it is an honest, if necessarily hurried, survey of an important subject, as well as a courageous attempt to divide available funds in equitable proportions.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

RETIREMENT OF DR. MATHESON CULLEN

Dr. George Matheson Cullen, I note, has retired from the staff of the Department of Health for Scotland. When the National Health Insurance Commission was formed he was appointed a medical officer and, on the union of that commission with the old Local Government Board, he was transferred to the general staff. Before joining the Commission, he held a number of appointments leading to a broadly based general practice. On the staff of the Commission he became an informal superintendent of the whole art of prescribing among the National Health Insurance practitioners, and there have passed through his hands literally millions of prescriptions. There is no doubt that his friendly criticism and consultations were of immense value in improving the standard of prescriptions in Scotland. He is a man of wide general culture and brought an atmosphere of scholarship to everything he undertook. He is a good modern linguist as well as a good classical scholar. His pamphlets on Andreas Vesalius are a careful piece of research on the life of that great Renaissance anatomist. He will be badly missed among the insurance practitioners as well as by his colleagues on the staff. He has had a wide experience, being for a time chairman of the public health committee of the town council and town representative on the Royal Infirmary management.

Dr. Cullen is succeeded by Dr. J. M. Johnston, lately Pollok lecturer in materia medica and therapeutics in the University of Glasgow.

NEW PROVISION FOR PHYSICAL EDUCATION

In 1905 the well-known College of Hygiene and Physical Training at Dunfermline was opened by Lord Linlithgow, then Secretary for Scotland. The College was built by the Carnegie Dunfermline Trustees and developed into one of the finest of its kind in Europe. It provided training for superintendents of physical education and there was accommodation for over 80 students. The College and gymnasium were run on the most modern lines and it is correct to say that the whole spirit of the Ling system, modified along the lines of modern physiology, was current there. The principal of the reconstituted College was a medical man, and anatomy and physiology were taught by medical men and women. Specialists from Sweden and Denmark had places on the staff. Some time ago, however, the College was transferred to the Scottish Education Department and came under the management of the National Committee for the Training of Teachers. It was found that the College, admirable though it was, was inadequate for the training both of men and women. By a new arrangement the women are still trained at Dunfermline, but a new institution has been opened at Jordanhill, Glasgow, for the men, and the medical principal has been transferred there. Incidentally arrangements have been made with the Edinburgh Royal Infirmary to train a proportion of the Dunfermline women students for massage work. It has been found that, after a number of years, superintendents of physical education tend to become neurasthenic and the training as masseuses opens to them an alternative career.

HELEN KELLER'S HONORARY DEGREE.

In conferring the LL.D. on Miss Helen Keller, the University of Glasgow has done a gracious act. All the friends of the blind and deaf in Scotland have combined to give Miss Keller the warmest hospitality and praise. Her story is known to all the world and it is a marvel. But to see the methods of her teacher, Mrs. Macey, fills one with wonder. Her methods of conveying facts to Miss Keller and re-speaking in her own tongue the articulate, but difficult, speech of her pupil, excited intense admiration. The most precise detail was conveyed by innumerable little touches of fingers and palms and face. It was really an inspiration towards new methods of expression. Both official Glasgow and official Edinburgh have gone out of their way to express their appreciation of the two women. And rightly.

BUCHAREST

(FROM OUR OWN CORRESPONDENT)

THE DIET OF FACTORY WORKERS

ACCORDING to Dr. E. Rasmerita, chief of the hygienic service of the Ministry of Labour, we can reckon the energy requirements of workers by consideration of age, sex, and of the temperature at which the work has to be done. In special works special installations are necessary for the cooling of the air, while in particularly cold regions the loss of body temperature requires additional supply of energy. The diet of factory workers, he said, should

be liberal in proteins and fats. Individual variations, of course, must be permitted. In Rumania the large majority of factory workers have no idea about rational diet. Their chief foodstuffs are bread, bacon, potatoes, and beans, and it is an urgent national need to introduce rational feeding into the factories, where the meals should be provided. Thus the workers would get substantial food at much cheaper rates than they can get it at home, and through their diet charts they would be taught how to feed rationally.

INFANT MORTALITY IN THE POOR DISTRICTS OF BUCHAREST

Dr. Stephanie Negrescu, physician to the Rumanian-Britannic Dispensary, has published a study in answer to a circular questionnaire on this subject. Her conclusions chiefly relate to the poor, and she finds the conditions of dwelling very bad in 46 per cent. of the working classes, bad in 40 per cent., and good in 14 per cent. only. The percentage of illegitimacy in Rumania is high, while in 42 per cent. of all children (legitimate or otherwise) there is a total lack of medical supervision. Out of the mothers 72 per cent. had received no prenatal care. There was premature labour in 18 per cent. of the cases inquired into. With regard to infant feeding there was breast-feeding in 56 per cent. of the cases, artificial foods were used in 18 per cent., and cow's milk in 26 per cent. Out of 170 deaths which occurred in the first year of life—being 2·2 per cent. of all the live-born babies under consideration—31 per cent. of the deaths were due to unspecified causes, 24·6 per cent. to specific infections, 21·8 per cent. to gastro-intestinal troubles, 10 per cent. to debility, 7 per cent. to congenital malformation, and 3 per cent. to injuries sustained during birth. The relation of mortality to sex was: male infants 61 per cent., female 39 per cent. The mortality according to age, expressed in percentage of general mortality was: in the first year of life, 0–7 days, 15·3; 0–1 month, 35·5; 0–3 months, 52·3; 3–6 months, 20·6; 6–12 months, 27·1. Out of all deaths the rate of first-borns was 30 per cent. The mortality of children in the first year of life by far exceeded that in the period of 1–15 years, and represents a third of the general mortality.

CUTANEOUS MYCOSES AT SCHOOL AGE

In Rumania cutaneous mycoses represent about 15–20 per cent. of all skin diseases, according to the estimate of Prof. Jonescu, of Bucharest University. The great spread of trichophyton epidemics in the schools is due chiefly to the fact that the school physicians do not take the trouble to make thorough microscopical examinations in incipient cases. Localisation of trichophytiasis on the nails is very infrequent; according to Dr. Theodorescu it occurs once in every 460 cases of trichophytiasis. In cases of purulent trichophytiasis, chiefly among children, there is usually a general infection present. The routine treatment in the Rumanian schools consists of the strict segregation of all sick children. In cases of trichophitia the children are segregated from other children only, while in cases of ringworm they are separated also from adults. In order that children should not lose instruction during the prolonged treatment when epidemics occur, special schools for the sick children have been established alongside the hospitals. The best treatment has turned out to be by X rays, though their application has to be made with the greatest caution, for the mycotic skin is very sensitive, and ulcers and permanent alopecia follows incompetent and unskilled treatment.

BERLIN

(FROM OUR OWN CORRESPONDENT)

PSITTACOSIS IN BRESLAU

An epidemic of psittacosis broke out two years ago (THE LANCET, 1930, i., 472, 975), the disease having been imported by parrots brought over from Brazil. The disease had disappeared in response to severe hygienic measures, but now some new cases are reported from Breslau. Here a family keeping a couple of small parrots in their home became ill and presented the symptoms of psittacosis. The parrots, of the species *Melopsittacus undulatus*, had been purchased from a parrot farm in a suburb of Breslau, and here for many years no parrot had been housed which had been imported from Brazil. Other cases which followed included the director of the Hygienic Institute of Breslau University, Prof. Prausnitz, who became severely ill after having carried out the bacteriological examinations. The farm was closed by the health authority, and the parrots will probably be destroyed. The story proves that not only parrots coming from Brazil but also those reared in Germany may harbour the virus of psittacosis.

THE ADIPOSITY OF SINGERS

The questions whether, and, if so, why, singers incline to adiposity are discussed in the *Medizinische Welt* with complete seriousness. Dr. Delbanco, of Hamburg, assumed the tendency of singers to be stout, and held that it is not the deep respirations which are necessitated by singing that influence the adiposity, but the connexion with the thyroid in association with the development of the voice. The theory was more obscure than the statements that neither abuse of alcohol nor want of exercise are to blame. But Dr. Singer, a medical man who was formerly artistic manager of the Berlin Municipal Opera, and is now conductor of the Berlin Medical Choir, denied the existence of adiposity among singers in unusual quantity. He reported to the meeting a list of well-known German singers, men and women, and said that the adipose were an exception. The lyric singers, he affirmed, are as a rule slender, and only some dramatic singers are stout, these not having become fat through the practice of their art, but in accordance with their constitutions. Their physique became prominent because it was found to suit certain rôles. Dr. Singer held that the influence of the thyroid gland, in relation to singing and adiposity, was not proven.

BONE-MARROW INJECTIONS IN CANCER

Before the Berlin Medical Society Prof. Rosenstein and Dr. Köhler have reported on their experiences in the treatment of cancer by injections of bone-marrow extract. Certain experiments on animals appearing to them to imply that bone-marrow contains a hormone having an influence on the growth of tissues in the young which it does not possess in adults, they injected alcoholic extracts of bone-marrow into a group of patients and obtained suggestive results in four cases of serious growths (rectal, œsophageal, and gastric), increase of weight, and absorption of the growths taking place. In the discussion Prof. van der Velde said that he had seen growths disappear under injections of fœtal or placental serum, but they had always reappeared after a certain time. The president, Prof. Goldscheider, thought that the improvement of the patients

reported by the speaker must be regarded as an encouraging fact.

THE CARE OF THE DEAF

The number of deaf has been constantly decreasing in Germany. In 1871, 9·7, in 1900, 8·6, and in 1926, 7·3 were registered for each 10,000 of the population. The great majority of the cases now belong to country districts. In about 10 per cent. the infirmity is congenital; in 21 per cent. scarlet fever, in 10 per cent. epidemic cerebral meningitis, and in 11 per cent. injuries were the cause, leaving a large number of undecided ætiology. The decrease of deafness has been certainly due to the energetic combat against infectious diseases under the general progress of medicine. There are in Germany 73 institutions belonging either to the States or municipalities, or to private corporations devoted to the institutional care of the deaf, including some of a religious character. In all these, pantomimic speech, formerly common, is now replaced by phonetic speech, and only comparatively few under treatment have to use writing to make themselves understood. The institutes accommodate some 20 per cent. of the born-deaf. There are also 17 institutes for children of defective hearing, where the residual hearing is cultivated and the children taught by lip-reading methods.

THE INCREASE OF SUICIDES

According to statistical records published in the *Deutsche medizinische Wochenschrift* the number of suicides has increased in Germany between 1913 and 1928 from 2·3 to 2·5 for each 10,000 of the population, and rose to 2·6 in 1929. Other countries show an increase from 1·0 to 1·2 (England and Wales), from 2·0 to 2·6 (Switzerland), from 2·0 to 2·1 (Japan). In the U.S.A., in Italy, the Netherlands, and in Norway the number of suicides has not changed. A decrease has occurred only in Spain (0·6 to 0·4) and in France (2·3 to 1·9). In Germany the sex-incidence of suicides is five men to two women.

PANEL AND CONTRACT PRACTICE

"Own Arrangers"

THERE are three types of case, as Harris and Sack point out in "Medical Insurance Practice," in which insured persons may make their own arrangements for medical treatment under the Act.

(1) The insurance committee, after consulting the local medical committee and panel committee, may fix an income limit and may *require*, subject to any exceptions they think fit, insured persons whose income exceeds that limit to make their own arrangements. This is believed not to be in operation in any area, in view of the practical difficulties involved.
(2) An exempt person whose total income is over £250 is *required* to make his own arrangements.
(3) The committee *may allow* any insured person, who applies to them for the purpose, to do so. In practice this consent is given only where there are exceptional circumstances. One class of case is where the staff of a hospital, asylum, or similar institution are provided with medical attendance by the governing body.

Another class of case which comes under Section 3 is the patient who wishes to have a homœopathic doctor. Frequently there is not one near enough on the panel, and permission is given for a local homœopathic doctor to attend. Committees vary in the giving of consent, but sometimes it does appear to be a hardship to refuse an insured person consent to make his own arrangements with a doctor under whom he has been for special treatment (not necessarily outside the scope of the Act) possibly before he became insured. In the early days of the Act, non-panel doctors did make a serious attempt to persuade insured persons that they could, by applying, make their own arrangements with them for attendance under the scheme, but insurance committees did not readily give such permission. When an insured person is allowed to make his own arrangement, he has to submit quarterly accounts in detail at a special scale of charges for each item of attendance. The doctor has to sign an agreement in which he undertakes to give treatment, not inferior in nature, quality, and extent to that supplied to ordinary insured persons. Insurance committees receive from the central pool each year a sum equal to the amount available for the treatment of an insured person, multiplied by the number of "own arrangers" in the area. From this fund contributions are made, and if the amount allowed does not cover the account submitted the balance may be recovered by the doctor from the patient as a private debt.

In London it is customary to discount more heavily than others certain especially heavy accounts which would tend to swallow up all the assets of the special arrangement fund, to the detriment of the more numerous smaller accounts. But even then it is unusual for the contributions from the fund to cover the accounts submitted for payment. Special figures for "own arrangers" submitted yearly to the distribution committee show that for every 10,000 insured persons in England, 9·7 are own arrangers, and 6·9 in Wales. The county boroughs average fourteen and the county committees seven. The following figures per 10,000 show local predilection:

Croydon	85	Middlesex	12
Cardiff	40	Kent	10
Swansea	20	London	7
Surrey	19	Newcastle	7
Essex	17	Manchester	5
Birmingham	15		

Twenty-two English and seven Welsh counties are marked as not giving any returns at all.

There may be some special reason why Croydon and Cardiff are so much higher than the usual average, but none is indicated. It might be worth while now that the Act is working so efficiently—and that non-panel doctors' opposition has become so feeble and insignificant—to formulate some policy which will allow more freedom for "own arrangers" to have the doctor they want. This would probably fritter away another grievance of insured persons of which we have heard rather much lately.

The London Panel Committee

At the June meeting the chairman reported that the Insurance Act Committee's subcommittee on the capitation fee would welcome statistical data indicating definite increase in the work done by panel practitioners since the arbitration proceedings in 1923. Members were asked to forward details to the secretary of the panel committee. Included in such data would be the statistics of visiting and consultations, the present number of reports for regional medical officers, the incidence of varicose veins injections, and so forth. One member thought that sufficient emphasis had not been laid on availability over a 24-hour day, which is included in the panel doctors contract in the 1923 calculations of the present capitation fee. The Memorandum of Evidence, on the Out-patient question, by the London Panel

Committee (see p. 35) was circulated. It was decided to offer to King Edward's Hospital Fund the coöperation of the Panel Committee—as representing the insurance practitioners of London—in assisting to solve the out-patient problem and to prepare a leaflet for the use of insurance practitioners in referring patients to hospitals. It was felt that some simple uniform letter would prevent abuse of the hospital, either by doctors who might wish to foist work on to the hospitals for which the doctors are paid or by patients wandering to hospitals on their own initiative. The underlying idea was that, except for the first attendance, no insured person should obtain treatment or advice in the out-patient department unless this letter had been properly filled in. Sixteen claims for anæsthetic fees were considered, nine of which came from one firm of practitioners. These, when asked for details, explained that five were cases of whitlow, which could only be properly treated by the administration of gas and a semilunar incision. The committee decided not to allow a fee for each of the five cases in view of the fact that most practitioners do successfully treat whitlows without claiming an anæsthetic fee. A suggestion from a member of the committee that those practitioners who had to repay their patients for fees charged as a result of the recent decision of the referees with regard to treatment of varicose veins should be reimbursed by the committee from the Panel Committee funds was negatived, the chairman holding that the funds of the Panel Committee could not be used for the purpose.

The London Insurance Committee

A meeting held at the County Hall on June 23rd was mostly occupied in the decision of "cuts" to be made in staff salaries.

Statistical data for the first quarter of 1932 were issued showing the total number of prescriptions to be 2,574,045, against 2,697,077 for the same period in 1931, the average number of prescriptions per person to be 1·35, against 1·42, and the average cost per person to be 10·34*d.*, against 10·85*d.*

The resolution of the Medical Benefit Subcommittee on the psychotherapy cases (which were the subject of discussion at the previous Panel Committee meeting) was withdrawn by the acting chairman for further discussion by his subcommittee. The resolution withdrawn read as follows:—

> That while the Committee agree with the opinion of the Local Medical Committee that the service of psychotherapy . . . falls into the category of service involving the application of special skill and experience of a degree or kind which general practitioners as a class cannot reasonably be expected to possess, they are of opinion that it is undesirable that psychotherapy should be practised by a person other than a recognised specialist in this form of treatment, and that they request the Minister of Health to refer the matter to referees for a ruling.

In reply to a question about a caution being administered to a firm who had employed a temporary unqualified assistant to dispense a National Health Insurance prescription, with the result that a mistake had been made, the chairman of the Pharmaceutical Service subcommittee stated that it was a very common practice to employ unqualified persons, and indeed was the only practice that would enable the work to be done at all. These unqualified people had to work under the supervision of a fully qualified man.

Out-patients

The deputation of the London Panel Committee to the Out-patient Committee (1932) of King Edward's Hospital Fund for London, sitting under the chairmanship of the Earl of Onslow, was received on June 3rd, and was followed by a deputation of the London Public Medical Service. The evidence given by both deputations is summarised in another column. Pertinent questions were asked by the chairman and other members of the committee. It was generally agreed that hospitals must give attendance to anyone who comes to them on the first occasion and of course to emergencies, but that after this first examination, unless special hospital treatment was indicated, the case should be sent back to his own doctor.

Explanations were given about a doctor's availability, as well as on deputising arrangements and the size of the panel allowed by regulations. It was pointed out that the 2500 panel patients allowed to a single-handed practitioner were not all ill at the same time, and in actual fact do not cause excessive work except in times of epidemic. Both deputations agreed with the committee on the desirability of a uniform doctor's letter, with space for reply, though this would involve much clerical work on the part both of the practitioner and the consultant. One further cause of crowding and of waste of time was the habit of flitting from one hospital to another, when investigations already done were repeated; but it was obviously difficult for hospitals which depended on voluntary contributions to turn from their doors people who thought they had a good reason for seeking advice and treatment there.

THE SERVICES

COMMISSIONS IN THE ROYAL ARMY MEDICAL CORPS

THE War Office announces that twenty-five permanent commissions in the Royal Army Medical Corps are being offered to qualified medical practitioners under 28 years of age, registered under the Medical Acts. There will be no entrance examination, but candidates will be required to present themselves in London for interview and medical examination on July 26th. Applications should reach the War Office not later than July 18th. Further information can be obtained from the Assistant Director-General, Army Medical Services, The War Office, Whitehall, London.

ROYAL NAVAL MEDICAL SERVICE

Surg. Lt.-Comdr. C. H. Savory to be Surg. Comdr.
Surg. Lt. (D.) G. B. F. Reece to *Pembroke* for R.N. Barracks.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt.-Comdrs. T. W. Drummond to *Vindictive*; J. A. Kerr to *Victory* for Haslar Hospital; R. B. H. Wyatt to *Tiverton*. Surg. Lt.-Comdr. (D.) W. M. Bull to *Vivid* for R.N. Barracks. Surg. Lts. A. Elliott to *Furious*; C. C. Ungley to *Victory* for R.N. Barracks; H. M. Willoughby to *Tiverton*. Surg. Sub-Lt. D. R. Hughes to *Champion*. Prob.-Surg. Sub-Lt. A. E. Williams to *Victory* for Haslar Hospital.

ARMY RESERVE OF OFFICERS

Capt. I. Aubrey, from Supp. Res. of Off., to be Capt.

ROYAL AIR FORCE

Flight Lt. V. S. Ewing is promoted to the rank of Squadron Leader.

HON. PHYSICIAN TO THE KING

Maj.-Gen. P. H. Henderson, late R.A.M.C., is apptd. Hon. Physician to The King, vice Col. W. R. P. Goodwin, late R.A.M.C. (ret.).

A MIDDLESBROUGH SANATORIUM.—Grey Towers, Nunthorpe, near Middlesbrough, the residence of the late Sir Arthur Dorman, was last week opened as a sanatorium for tuberculosis patients belonging to that town. The building, which has been equipped for 30 male adults and 15 children, has been presented to the borough, with 77 acres of land, by Lieut.-Colonel T. Gibson Poole and his wife, the latter of whom performed the opening ceremony.

CORRESPONDENCE

EPSOM COLLEGE AND MEDICAL WOMEN

To the Editor of THE LANCET

SIR,—It is with singular satisfaction that I am able to announce that Parliamentary sanction has been obtained for the inclusion of medical women and their children in the benefits accorded by the Royal Medical Foundation of Epsom College. When the College was founded in 1855 medical women were almost non-existent and accordingly the Act of Parliament ignored them. In 1894 an Amending Act was passed through Parliament as a Private Bill, that empowered the College to change its unhappy birth-name to that of "Epsom College." On this change of name depended the very existence of the College, and though at that time medical women were rapidly growing in numbers, it was out of the question that the College should risk the loss of this vital change by the addition of proposals for the inclusion of medical women, which, at that time, would have undoubtedly excited fierce controversy. So it has come about that until now medical women have continued to be excluded from the benefits of the Foundation, as the Council were unable to face the expense of another Private Bill. Now, at long last, by the good offices of the Charity Commissioners and Board of Education, this disability has been removed, without expense to the College. To show the revolution of feeling in the interim it is sufficient to state that the change was approved by the unanimous vote of the Council and by close on 93 per cent. of the Governors.

Epsom College is a public school, and all but some 60 of its 415 boys pay fees that cover the whole cost of their education and maintenance, though a reduction of fees is made in the case of sons of medical practitioners. The Foundation is the nucleus round which the whole school has grown up and is exactly comparable to "college" at Eton and Winchester, with this important exception that these older bodies can rely on endowments, hoary with age, while our Foundation depends on the pecuniary support afforded year by year. It educates free of all cost whatsoever, including clothing and all other expenditure, 50 needy sons of deceased or disabled medical practitioners, and gives an assisted education to ten more, who, though not necessitous, need some help. A large number of valuable scholarships at Oxford and Cambridge, and at the London medical schools, are open to boys on leaving the school, some of which are exclusively for Foundationers.

Apart from the College there are five scholarships of £120 a year for the education of the needy daughters of medical practitioners, and 180 pensions and annuities are awarded to aged medical men, or, if deceased, to their female dependents.

The Council feel that, in drawing the attention of medical women to the changes now effected, they may justly add an appeal for financial support to those who so far have felt no obligation to give it. The work of the College could be so extended as to cover all educational calls, and to benefit a much larger number of those older persons who have gone to the wall in the struggle for existence, with only such a moderate increase of income as is well within the power of the profession. Not only will our Secretary at Bedford-square welcome subscriptions of any amount, one guinea a year or a single donation of ten guineas constituting a Governor, but he will be even more grateful for offers from medical women to act as honorary local secretaries in any of the numerous districts that are still unprovided.

I am, Sir, yours faithfully,

RAYMOND CRAWFURD, M.D.,
Chairman of Council, Epsom College.

Epsom College Office, 49, Bedford-square, W.C.,
June 23rd, 1932.

BRONCHOSCOPIC APPARATUS

To the Editor of THE LANCET

SIR,—In your issue of March 26th, under the heading of New Inventions, appears a description of a bronchoscopic apparatus by Dr. A. J. Scott Pinchin and Dr. H. V. Morlock. I would like to point out that last winter, before the Section of Laryngology of the Royal Society of Medicine,[1] I demonstrated a complete set of telescopic aids to be used in conjunction with broncho-œsophageal specula, on the development of which I had been engaged for some 12 months. The actual instruments shown were:—

1. Two direct forward vision telescopes, 60 and 60 cm. long.
2. A half-forward vision telescope.
3. A right-angled vision telescope. With this attachment a view of the upper-lobe bronchus and its subdivisions was easily obtained.
4. A telescopic attachment for the well-known Haslinger laryngoscope, by means of which the subglottic space could be carefully examined.
5. A telescopic attachment to be used in conjunction with a radon seed introducer, designed by Mr. H. S. Souttar.

All these instruments were made by Messrs. Down Bros. with the exception of one forward-vision telescope, which was made by Messrs. Allen and Hanburys, Ltd. I acknowledged my indebtedness at the time to your contributors for their kindness in affording me facilities for testing models of these devices at their bronchoscopic clinic, and I still feel grateful to them.

It would be idle to set up a claim for priority or originality, as these optical devices are merely an adaptation and extension of the principles used in cystoscopy for at least two decades. Nevertheless, this adaptation was a labour of some magnitude, and Mr. H. Guy Drew, of Messrs. Down Bros., deserves full recognition for his untiring patience and ingenuity. The only claim to priority I can make is that I requested Mr. Drew to adapt the optical system of the cystoscope to the bronchoscope. Chevalier Jackson found that optical systems which have proved so valuable—nay, indispensable—in cystoscopy, were disappointing in bronchoscopy. Yet, although I yield to no one in my admiration of this greatest of living exponents, I agree with your contributors that such a system is of great value from the diagnostic point of view. Your contributors did not, however, stress the limitations, and I venture to rectify this omission.

From the operative point of view, an entirely different set of circumstances must be considered—and I rather fancy it is this aspect that influenced Chevalier Jackson's verdict. In the first place, as I pointed out at the Royal Society of Medicine, a telescope imposes certain alterations of perspective that might well prove troublesome. Secondly, the space occupied by a telescope, however fine its bore, within the lumen of the bronchoscopic or œsophageal speculum is a definite handicap to delicate instrumental manipulation. Thirdly, illumination must

[1] Proc. Roy. Soc. Med., 1931, xxiv., 1644.

be more powerful owing to absorption of light by the lenses, necessitating larger bulbs—hence more encroachment on valuable space.

These strictures do not apply where mere inspection of a region, say of the lung, is desired or where a tube is to be introduced for the purposes of aspiration. But in operative bronchoscopy—e.g., removal of foreign bodies or moderately large portions of tissue—conditions are somewhat cramped. I can well conceive, however, that this system will prove a valuable check on operative measures, when, for instance, the surgeon, before proceeding, wishes to orientate himself. Introducing a telescope for a few moments to recognise structures at eye-level may prove invaluable. He might, for example, wish to be sure when grasping a foreign body, that no lung tissue is within the jaws of the forceps. Therefore if this telescope survives, I believe it will do so as an adjunct to orthodox broncho-œsophagoscopy, rather than as an entity apart.

As an example of the antiquity of this method, the gastroscope might be quoted. This is a telescope of large bore passed through a suitably lighted speculum into the stomach. Shorter editions of this, of slightly less bore, have been used sporadically for bronchoœsophagoscopy and can be found on the shelves of various instrument makers, including Messrs. Down Bros.

The models shown were, of course, more slender and practicable, being 3·5 mm. in diameter. Technical advances have been made in lens and glass manufacture since the days of their crude predecessors. Alas for claims of priority! I am reminded of the words I have heard Sir StClair Thomson quote so often: "There is nothing new, only that which has been forgotten."

I am, Sir, yours faithfully,

Johannesburg, May 12th, 1932. O. POPPER.

INFANTILE ECZEMA AND METALLIC POISONING

To the Editor of THE LANCET

SIR,—In view of the controversy concerning the danger of using aluminium cooking utensils the following cases of infantile eczema deserve, in my opinion, to be recorded.

(1) A girl, aged 11, has been suffering from eczema, diagnosed as of allergic nature, practically since birth. Local treatment recommended by different dermatologists failed to cure, and succeeded only for a short time in alleviating the pruritus. Apart from such short intervals the misery of the child's life and that of the family was said to be beyond description.

(2) A boy, aged 5, has been the victim of the same disease for four and a half years. Local treatment given by various skin specialists failed to have the slightest effect, and the child, always covered by bandages, could not be shown to the relatives. The itching was so intense that the child used to fall asleep only from exhaustion and wake again at frequent intervals.

(3) A boy, aged 4, has had the same disease to a degree slighter than the two previous cases, but sufficient not to allow the parents to interrupt local treatment even for a short time.

These three children were put on a diet not different in any respect from that given to a normal healthy child, with the exception that food was not allowed to be prepared in aluminium utensils. In addition, care was taken that besides this metal the ingestion of any other metallic substance contained in tinned foods, tap water running through lead pipes, &c., was stopped. To absorb and eliminate the poison accumulated in the body a high-grade charcoal was given in large doses, followed by an aperient. All local treatment was discontinued.

The result of this régime proved successful in all three cases. Case 1 was practically cured in five weeks. Case 2 remained entirely free for two and a half years, when the parents, believing the child now out of danger of susceptibility, gave him food not subjected to the above-mentioned restrictions and the condition recurred. The slighter eczema of Case 3 disappeared after three weeks' treatment on the same lines. On being given food not free from metallic contamination the eczema soon recurred, to disappear as rapidly when the régime was again strictly followed.

It should be added that a fourth child suffering from infantile eczema unexpectedly did not respond to the described treatment, for reasons not accounted for.

I am, Sir, yours faithfully,

LEO SPIRA, M.D.

Finchley-road, N.W., June 16th, 1932.

STREPTOCOCCAL SEPTICÆMIA COMPLICATING EPIDEMIC INFLUENZA

To the Editor of THE LANCET

SIR,—The two cases described by Dr. R. E. Smith under the above heading may have been cases of influenza, on the other hand they may have been cases primarily of a streptococcal infection, the initial symptoms of which not infrequently simulate influenza, Case 1 being then a streptococcal tonsillitis complicated by quinsy, and Case 2 a streptococcal septicæmia arising from a throat infection. No record of any bacteriological examination of the throat is given in either case, and no typing of the hæmolytic streptococci appears to have been done, so we cannot say that they were not of a scarlatinal type. The Dick test in the two cases and an epidemiological account of the school would also have been instructive. The statements by Dr. Smith fully bear out my previous contention that the term "diagnostic syndrome" is a misnomer when applied to four symptoms which may occur in hæmolytic streptococcal septicæmia and its use may lead to misleading conclusions as some cases may not show a number of the symptoms and others none.

The last paragraph of Dr. Smith's article contains a number of inaccuracies which require correction: (1) Drs. Burton and Balmain did not insist that "antiscarlatinal serum" benefited the case described by them. The case was treated with antipuerperal as well as antiscarlatinal serum and the conclusion drawn was—

"The value of the treatment of streptococcal septicæmia with sufficient doses of concentrated antitoxic sera, and the importance if one brand of antistreptococcal serum fails of the recourse to another, our supposition being that all antistreptococcal sera are not antitoxic to all types of hæmolytic streptococci."

We also disputed the strictures passed by Ryle and Smith on the use of serum owing to the risk of serum sickness. We pointed out the ease with which our patient had been desensitised and serum treatment again instituted. (2) Cadham's figures were not used to support the value of antiscarlatinal serum as stated by Dr. Smith, but we said that—

"Cadham claims remarkable success in the treatment of septicæmia. He acknowledges the importance of specificity of the therapeutic serum and endeavours to obtain this by the use of multiplicity of strains of streptococci in the preparation of his immune sera. But he believes that, in addition to the use of specific sera, it is necessary to augment

this treatment by the repeated transfusion of normal human serum in order to activate complement."

As far as Dr. Smith's suggestion that Cadham's cases were "selected" is concerned, Cadham's own statement is that of all his cases the majority were in an advanced stage of the infection and with these this method of treatment was adopted as a last resource.

Dr. Smith does not refer to some other authors cited by us but singles out Comber and states that all her cases were scarlet fever. One of the seven cases described by Comber was not scarlet fever, and in any event it is necessary to appreciate that many cases of streptococcal septicæmia—e.g., in puerperal fever—are due to a scarlatinal type of streptococcus although the patient has not contracted scarlet fever itself.

I am unable to follow the logic of Dr. Smith's remarks, for he appears to believe in serum therapy when the body resistances are lowered by an acute or chronic infection, while he would withhold it if such is not the case; surely in any case of septicæmia he should give the patient the benefit of any treatment which may turn the scale in his favour. I would suggest that in his second case, in view of the apparent improvement with such treatment in the initial stages, more intensive treatment with various brands of serum might have had a beneficial result. I might also add to the general methods of treatment the value of open-air treatment which he does not mention.

As far as antiscarlatinal serum in the treatment of scarlet fever is concerned, Dr. Smith would appear to believe that antiscarlatinal serum has always a good effect in septicæmic cases. This is incorrect. I have seen at least two such cases with positive blood culture die in spite of intensive serum treatment. We are in ignorance why serum is ineffective in such cases. Some hold that its value depends on a non-specific protein action, others that its failure in such cases is due to a lack of specificity or to its lack of anti-bacterial action. Our ignorance is, however, no reason why we should withhold serum when benefit may accrue to the patient.

I am, Sir, yours faithfully,

A. H. G. BURTON,
Medical Officer of Health, Ilford.

June 23rd, 1932.

PSEUDO-MIRROR-WRITING, AND SIXTEEN PERSONALITIES

To the Editor of THE LANCET

SIR,—I read with great interest the paper on pseudo-mirror-writing by Dr. Eager and Dr. Fisher in your issue of April 23rd. Your readers may like to be reminded of a case of this type in which other factors were present. The late Dr. Milne Bramwell, in his classical work on "Hypnotism: Its History, Practice, and Theory" (London, 1930, p. 380), gives an account of Mary W., born in October, 1882, who was under the care of Dr. Albert Wilson, of Leyton-stone. In the following quotation the italics are mine:—

> Mary W.... had in April, 1895, an attack of meningitis with influenza. During the third and fourth weeks of the illness there was high temperature with delirium bordering on mania; and she called people snakes, and did not recognise her friends. In the fifth week, during convalescence, her character changed, and she began to give those around her names which were not their own: thus, her father was 'Tom'; her mother, 'Mary Ann,' &c. About the sixth week attacks of secondary consciousness appeared; the patient would suddenly turn a somersault on the bed, and then assume a new character—returning suddenly to the normal and resuming what she had been occupied with before the attack. At first the seizures lasted from 10 to 50 minutes, but increased to hours, days, and weeks, as the time went on. The secondary self knew nothing of the primary one, and vice versa; further, the secondary self had apparently lost much of the knowledge the primary self had acquired. Thus, *in the second state* the patient did not know what her legs and arms were, and was childish in her talk. *She could write her name*, however, *but this she did backwards*, beginning at the tail of the last letter and writing quickly from right to left—*not mirror-writing*.
>
> After a few months the periods of normal life became shorter, and *in place of one secondary stage various others showed themselves from time to time. Of these there were 16 in all*, termed by Dr. Wilson stages *a*, *b*, *c*, *d*, &c. In each stage the patient remembered what had happened during previous attacks of the same stage, but knew nothing of what had occurred in any of the other stages; while the primary consciousness remembered events in the normal life alone, and knew nothing regarding the incidents which happened in any of the numerous other stages.
>
> At the end of a year the normal condition rarely appeared, and then only as a flash—somtimes coming to the surface for five or ten minutes, sometimes only for a few seconds.
>
> The following states were noted, most of them being named by the patient herself:—
>
> (*a*) The patient called herself 'Thing'; she was vacant, knew nothing of her past life, and could not stand.
>
> (*b*) Called herself 'Old Nick,' and was passionate and mischievous.
>
> (*c*) Here there was *catalepsy with deaf-mutism*, but the patient wrote down all she wanted.
>
> (*d*) In this stage the patient had forgotten not only the incidents of normal life, but apparently also much of the general knowledge acquired during it. *In writing, she spelt backwards in the manner already described.*
>
> (*e*) A stage characterised by terror.
>
> (*f*) Here the patient called herself 'Good thing,' and was docile, but usually without power in her feet or hands; this stage, however, was quite distinct from (*a*).
>
> (*g*) The patient now called herself 'Pretty dear,' was sweet and amiable, but *could not write or spell*.
>
> (*h*) Called herself 'Mamie Wud'; in this state she recalled the events of childhood better than when awake, but was unable to remember anything about her illness.
>
> (*i*) This stage was somewhat like (*d*); when in it the patient knew nothing, and thought she was just born. (*j*) Not stated.)
>
> (*k*) Here the patient called herself 'Old Persuader,' and asked for a stick to strike people with if they would not do what she wished.
>
> (*l*) She called herself 'Tom's darling,' and was apparently a nice child.
>
> (*m*) In this stage she asserted that she had 'no name,' and was violent and unkind.
>
> (*n*) She called herself 'The dreadful wicked thing,' threw her slippers into the fire in a temper, &c.
>
> (*o*) In this stage she called herself 'Tommy's lamb,' and was blind and idiotic.
>
> (*p*) In December, 1896, a further stage developed, which lasted till February, 1897. In it the patient constantly repeated the word 'picters,' and *drew beautifully; she even did so when she was prevented from seeing the paper on which she was drawing. The original self was unable to draw.* During this stage the pupils were dilated and reacted feebly to light, while the patient was apparently insensible to sound.
>
> As time went on, the patient when in abnormal stages began to have some idea of what had taken place in her ordinary life; when in the latter condition, however, she still had no recollection of anything that had happened in any of the abnormal stages. In July, 1898, she passed into a condition more closely resembling the normal one; she was still, however, childish and called herself 'Critter Wood.'
>
> In the spring of 1900, five years after the commencement of her illness, she had apparently settled down into stage (*g*), but had been taught that Mary W., not 'Pretty dear,' was her name. She was a fine, healthy, well-developed girl, who helped in the house and was anxious to learn typewriting in order to keep herself. Her character, however, differed slightly from her original one, and she was still somewhat childish at times.
>
> It would appear that the last state referred to as (*g*) was really a "seventeenth stage," which might be called (*q*).

This case, in my opinion, is evidence of the existence of a subliminal consciousness, and gives much food for thought.

I am, Sir, yours faithfully,

ALEXR. CANNON.

Colney Hatch, N., June 17th, 1932.

OBITUARY

SIR ROBERT FOX-SYMONS, K.B.E., M.R.C.S., L.R.C.P. Lond., D.P.H.

WE regret to announce the death of Sir Robert Fox-Symons, which occurred in a nursing home in London, after a short illness, on June 26th.

Of Cornish extraction and born in Brazil, Robert Fox-Symons was educated privately and entered the medical school of St. Thomas's Hospital in 1888. He obtained the English double qualifications in 1894 and served as house surgeon at St. Thomas's Hospital. His long experience as a Red Cross surgeon commenced shortly afterwards, for in this capacity he served throughout the war in 1897 between Greece and Turkey, and for two years he was present in a similar capacity throughout the Transvaal war. This latter activity led to a series of important appointments in South Africa, for having returned home in 1901 to take the D.P.H. of the Irish Royal Colleges, he returned to South Africa to take up his duties as M.O.H. for Pretoria. Later he acted as M.O.H. for the Transvaal, when he was elected a member of the Legislative Council, and in the years 1903–04 he held the position of Inspector-General of Hospitals in the Transvaal, with the position of medical officer to the High Commissioner. On his return home, after filling these responsible posts, he set up in private practice in South Kensington, where his abilities and his personality soon brought him considerable success. But at the outbreak of the European war he resumed his old associations with the Red Cross, taking over charge of the Auxiliary Home Hospital Department throughout the protracted hostilities. For this he received in 1918 a well-earned K.B.E. He was also a Knight of Grace of the Order of St. John of Jerusalem in England.

Fox-Symons was not a writer, and save for the annual health reports of Pretoria, he published only an account of the X ray therapeutics during the Greco-Turkish war; in this he collaborated with Mr. F. C. Abbott. But although he wrote little, he possessed a fund of information garnered from his full life as public officer and as practitioner, was an excellent talker, and an old and popular member of the Savile Club.

Sir Robert Fox-Symons married, in 1901, Maud, daughter of the late Mr. Joseph Calverly Graham, and he leaves one daughter.

Dr. E. Chittenden Bridges writes: "As one of the late Sir Robert Fox-Symons's oldest friends—our friendship dating back some 40 years or more—I wish to add my tribute to his memory. 'Foxy,' as he was affectionately known to his intimates, possessed one of those kind, sympathetic, and lovable natures which endeared him to all his friends and patients. He was always ready to come to one's aid, whether it was professional or otherwise, and the writer has more than once received great kindness from him. Being a good musician, he was much sought after as a young man, and was the life and soul of many a musical party given in the wards of the London hospitals. For some years he has been handicapped in his work as a general practitioner, suffering from double thrombosis of the lower extremities, following a severe attack of typhoid fever during the South African war, from which he never recovered. He has fought a brave fight against ill-health these last few years which few of us could equal, and always had a cheery smile for those he came in contact with. He will be greatly missed by a large circle of friends, and by many patients who were much attached to him."

PUBLIC HEALTH SERVICES

MENTAL HOSPITAL REPORTS

THE CHESHIRE COUNTY MENTAL HOSPITAL at MACCLESFIELD had 1317 patients on the register at the end of last year. The question of increased accommodation has again been under consideration, the suggestion being to build a new admission hospital and villa with 500 beds. The recovery-rate for 1931 was 38·6 per cent. and the death-rate 4·92 per cent. There was an epidemic of influenza in the spring, and 21 patients suffered from dysentery. The laboratory proved the nature of the infection in 14 cases and found the Flexner bacillus. A serological investigation of staff and patients in the dysentery wards is being made. Ten cases of general paralysis were treated with induced malaria; four were discharged improved and three died. The after-history of all cases so treated—a total of 19—is recorded in a special report; 14 patients report that they are in good health, and nine are employed, while only three of the nine unemployed attribute this fact to their health. One has died, apparently from an acute illness. Light treatment was given to 29 men and 78 women and to many of the staff, with good results. A number of other patients had radiant heat, prolonged baths, or electrical treatment. A large new occupation pavilion has been opened, and the occupations officer has been appointed part-time social worker under the Mental Treatment Act, 1930. The visiting dentist has attended regularly, and an honorary radiologist has been appointed. During the year seven nurses and two attendants obtained their R.M.P.A. certificate.

At the BALLINASLOE MENTAL HOSPITAL there were 1612 patients on Dec. 31st, 1929; the numbers are increasing steadily. The recovery-rate for the year was 58·4 per cent. on the number admitted, a result which the medical superintendent regards as satisfactory considering the dense overcrowding. There were 74 deaths during the year. The committee has considered several solutions for the surplus of 250 patients; the best seems to be to transfer a number of chronic cases to some other building. About 200 of the women patients are kept employed, and the visiting commissioner was pleased with the cleanliness and neatness of these congested wards. A needle spray and shower bath has been installed, and the committee is considering the possibility of supplying electric light. The work of the woman dentist has fully justified her appointment.

The report of THE LAWN, LINCOLN, is, as usual, an attractively presented document, illustrated by a water colour of the building. The voluntary admissions were once more nearly double the certified ones and include a number of recurrent cases. No temporary patient has been admitted, and the medical superintendent finds a number of difficulties in applying the "temporary" clause of the Mental Treatment Act of 1930. The recovery-rate for the year was 42·8 per cent. and there were five deaths. There was no epidemic disease. Occupation, exercises, and folk-dancing play an important part in the treatment, and a foam-bath has been added to the hydrotherapeutic equipment. Throughout a very difficult year the hospital has maintained its very high standard of comfort and individual attention,

but its accommodation is only half occupied and, without an endowment fund or outside financial assistance, its charitable purposes cannot be fulfilled. The governors conclude that the many friends of the hospital have not really appreciated the gravity of the position. As the report says, "It will be a calamity if the noble work of a century, carried on by a succession of distinguished physicians on behalf of a body of governors who have always given their services without material reward has to end, but this is the issue with which the governors are faced."

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JUNE 18TH, 1932

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 25 (last week 36); scarlet fever, 1424; diphtheria, 720; enteric fever, 58; acute pneumonia (primary or influenzal), 819; puerperal fever, 32; puerperal pyrexia, 116; cerebro-spinal fever, 50; acute polio-myelitis, 6; acute polio-encephalitis, 1; encephalitis lethargica, 15; dysentery, 7; and ophthalmia neonatorum, 99. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on June 21st–22nd was as follows:—Scarlet fever, 1512; diphtheria, 1380; enteric fever, 17; measles, 1853; whooping-cough, 404; puerperal fever, 14 (plus 14 babies); "other diseases," 92.

Deaths.—In 117 great towns, including London, there were no deaths from small-pox, 2 (0) from enteric fever, 53 (16) from measles, 9 (4) from scarlet fever, 37 (16) from whooping-cough, 19 (6) from diphtheria, 46 (18) from diarrhœa under two years, and 22 (8) from influenza. The figures in parentheses are those for London itself.

Liverpool reported 18 deaths from measles. Of the fatal cases of whooping-cough, 3 were at Stoke-on-Trent, and 2 each at Leeds, Liverpool, Manchester, Bristol, and Leicester. Six deaths in Liverpool were attributed to diphtheria and 3 in Middlesbrough. Of the fatal cases of diarrhœa and enteritis 9 were in Liverpool, 4 in Manchester, 3 in Birmingham, and 2 in Sunderland.

The number of stillbirths notified during the week was 289 (corresponding to a rate of 41 per 1000 total births), including 47 in London.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

National Health Insurance Bill

IN the House of Commons on June 21st, on the report stage of the National Health Insurance and Contributory Pensions Bill, Mr. H. WILLIAMS moved, and Sir FRANCIS FREMANTLE seconded, a new clause, the main purpose of which was to impose a new test—namely, that any woman who put in 26 weeks actual work in one year after marriage was to be regarded as in real employment and entitled to insurance rights. Sir E. HILTON YOUNG said that the clause went too far in creating a wholly new class which would have to fulfil a positive test as to employment before they obtained benefit. That was a sharp discrimination which could not be justified. The clause was negatived.

Panel Doctors and Certification

Mr. RHYS DAVIES moved to leave out Clause 3 (rates of sickness and disablement benefits). He said that there were persons who had been drawing disablement benefit under this scheme for 15 years without a break. A reduction of 2*s.* a week in sickness benefits was a very small and petty proposal by comparison with the reduction of disablement benefit which might be payable over a period of 15 or 20 years. If they had to accept a reduction of benefit at all he would prefer a reduction of sickness benefits alone, leaving the disablement benefit where it was. He wished the Minister had gone a little deeper into the causes of the increased claims of women, because the reduction of benefits by itself would not save the scheme. One of the primary causes for the Actuary's report, and the introduction of this clause, was the loose certification by some members of the medical profession. Everyone knew about the £2,750,000 which was taken from the funds in 1926. The approved societies had had to carry another item, a new charge during the last few years—the whole of the medical benefits. Then the Ministry appointed about 200 regional medical officers to check the work of the panel doctors, and the cost of those regional medical officers had fallen on the funds of the approved societies. In addition, there was a new staff of regional dental officers which checked dental claims. The Ministry had not been satisfied either with the medical or the dental practitioners under this scheme. He said, therefore, that, unless there was a new conception of their duty among the medical profession towards this scheme, nothing, not even a reduction of benefit, could save the scheme. If what they themselves admitted was true, then the scheme could not stand, whatever was done by Parliament in the way of reducing benefit. There would have to be greater coöperation between the societies and the medical profession. Unless there was a better understanding between the panel practitioner, the society, and the insured person as to the meaning of the scheme, nothing they could do in Parliament would avail them very much.

Mr. BUCHANAN said that the circular issued by the Minister of Health of the Labour Government in 1930 was a deliberate act to hound the doctors to be less humane to poor people than formerly. If the Labour Party were proud of the desire of their front bench for inhuman treatment by doctors, he was glad his association with them was severed. It was said that the doctors were too compassionate, and gave certificates on compassionate grounds. Let the House imagine the Labour Party, built up by the poor, attacking the medical profession because they were kind to the people! He would defend the doctors and anybody else who showed leniency and kindness to the poverty-stricken poor.

Dr. O'DONOVAN said that Mr. Rhys Davies had shot his bolt and departed. He seemed to have some obsessional complex, and it was to be regretted that it was obsessional in regard to the panel doctors. If there was such a thing as loose certification he (Dr. O'Donovan) did not think that it would ever be corrected by loose speaking that covered looser thinking. An approved society depended for its efficiency upon good certification, and good certification would never be obtained from doctors who were under the lash of actuaries of venerable aspect, but with soulless intellects. If the speech of Mr. Davies displayed the spirit by which the approved societies were guided in this country, then the greater distance the doctors kept from those societies the better for the sick and the better for the doctors. The certification of married women was certainly difficult, and there was no doubt that certification must be done with that consideration for the sufferer that he hoped always animated the panel doctor. A married woman bringing up a family was subject for years to a greater stress than any industrial hazard known to man. Doctors knew that, and married men knew that, but it was strange that when one was lifted to the calm and cool air of the board-room of an approved society these humane and medical facts were soon forgotten.

REGIONAL MEDICAL OFFICERS

Loose certification, said Dr. O'Donovan, had never yet been proved. He could take no exception to any charge that was made so long as it was admitted

that the man charged believed that he had an answer. But to put forward with authority the uncertificated admissions of unnamed people as a definite accusation of dishonest conduct on the part of those in charge of public funds was unworthy of what up to date he believed to be the standard of the Front Opposition Bench. He had seldom heard charges made in such ungracious language as those of Mr. Rhys Davies. He went on :—

> The regional medical officers do not exist to "check the work" of their colleagues; they are brother colleagues, ready to help the juniors in their difficult work and to promote cordial interaction between all the forces of public medicine. For instance, I myself am responsible for a large department dealing with that disfiguring and destructive disease known as lupus. The approved societies, represented to us as the last word in benevolence, are continually seeking to have the allowance paid to the sick cut off, under the impression that those who are losing their noses, ears, and whole portions of their faces are fit to work, because their biceps are still sound.
>
> Regional medical officers are of the greatest assistance to me. When complaints are made to them that these patients are away from work too long, those officers, represented to the House as an expensive check on bad work, are of the greatest service in putting my opinion about my patients to the approved societies, whereupon the complaints are withdrawn and the sick pay is continued. Regional medical officers are experienced doctors who have had from 5 to 15 years' work in general practice, and they would resent from their hearts the suggestion that they exist as policemen or as detectives or guardians of the public purse. They are most useful public officials. They are seldom officious and, in my experience, are always helpful and are seldom a check.

They were told, Dr. O'Donovan concluded, that doctors should have a new conception of their work. That was a most startling and explosive thing. The medical profession had existed for 2000 years as a coherent and traditional body, and it was an explosive thought that a new conception of medicine should come in. Their sole object was to help the sick and to keep the sound alive, and the only new object that could come in would be for them—to use an American phrase—to continue with a new right to "bump them off" for having lived too long and for having exhausted the funds of the approved societies for too many years. He hoped that they had heard the last of these loose attacks upon the panel doctor who did not enjoy the limelight, and did not enter the market place or the senate house to defend himself. Panel doctors whom he knew—and he knew them by hundreds—were as honourable in their intentions and as upright in their certification as any politician was in the conduct of public business.

After further debate,

Sir E. HILTON YOUNG said that it was not a pleasant thing to have to propose to reduce this particular benefit. It was only done under the stress of sheer necessity.

The amendment was negatived by 263 votes to 49.

The report stage was concluded, and the Bill was read the third time by 246 votes to 43.

Health Services in Scotland

On Wednesday, June 22nd, the House of Commons went into Committee of Supply on the Civil Estimates, Captain BOURNE, deputy-chairman of Committees, in the chair.

On a vote of £1,572,002 to complete the sum for the payment of salaries and expenses of the Department of Health in Scotland,

Mr. SKELTON, Under-Secretary of State for Scotland, said that out of a gross total of just short of £3,000,000 in the estimates for the Department, housing grants amounted to very nearly £2,000,000 and sums payable to the National Insurance Fund amounted to over £600,000. Therefore it would be seen that the area of economy was very restricted. The net decrease for this year, however, was £38,000, and that decrease would have been much larger but for the fact that grants amounting to £64,000 for completed houses became due. In general the health of Scotland during 1931 showed a definite though small improvement. The infantile mortality-rate last year was 82 per 1000 instead of 83. Maternal mortality was reduced from 6·9 per 1000 to 5·9, and the death-rate from tuberculosis fell from 88 to 87 per 1000.

Turning to an examination of the position in regard to housing in Scotland, Mr. Skelton said that the returns for 1930 showed that just under 40,000 more houses were needed to house persons now living in insanitary dwellings, 21,000 to abate overcrowding, and 13,000 to meet the normal growth of population; and there was an extra 4000 which did not come into any of these categories. Since a great many of these returns were sent in a new and vital fact had been made known—namely, that the population of Scotland, as shown by the census of 1931, was not increasing, but had, in fact, decreased by just under 40,000. What they had to consider was whether they could say that the 13,000 additional houses which were said to be required against the normal growth of population was a figure now to be disregarded. He thought not, because there had been very considerable increases in the great cities and some of the larger burghs. The census had revealed another interesting and relative fact—namely, that to-day there were nearly 100,000 more occupied houses than at the last census. It followed that with a declining population and an extra 100,000 houses occupied, overcrowding must be reduced. In 1911 the average number of persons per house in Scotland was 4·69, in 1921 4·61, and now it was 4·21. It was essential to know that the district applying for houses was one where the population was increasing, unless there were other factors, such as the age of the town and the uninhabitability of the houses, which might make reconstruction essential. The policy which his Department proposed to adopt however, and indeed had adopted, was a careful scrutiny of all applications for the building of new houses, to make certain that these were essential. Slum clearance was of first importance, and wherever possible slum dwellers should get the advantage of new houses. There was, he thought, a widespread feeling in Scotland that in a certain number of cases the right people did not get into the new houses, and an inquiry was in progress to ascertain the steps that could be taken to ensure that this would not be so in the future. He had examined a certain well-known scheme consisting of 1500 houses, everyone of them drawing a State subsidy and a local authority subsidy. At least 74 of those houses were occupied by tenants rich enough to build garages in addition, and the occupiers described themselves as stockbrokers, lawyers, architects, managers, travellers, civil servants, merchants, and manufacturers. Only those who really needed these State-aided houses should be allowed to occupy them. It was most important that in Scotland they should have private enterprise in housing restored, so that it could take a part equivalent to that which it played in England.

Mr. N. MACLEAN said that in the Estimates there was a figure with regard to the training of midwives. In many cases a midwife called into a poor home was left without any payment, while the doctor received his full fee. Something might be done to ensure that these women received their fee, and if there was only sufficient money to pay one fee it should be shared between the doctor and the midwife.

Mr. MACPHERSON said that the Highlands and Islands Medical Service had done much good, and it was regrettable that the estimate for this year had had to be decreased from £70,000 to £66,000. There might be a good justification for the decrease, but he would have thought that false economy. To-day anyone who went to the Highlands would see the great work that had been done by this service. The doctor, usually a decent fellow and a highly skilled practitioner, was miserably paid and was often badly housed. He strongly suggested that the Department of Health should reconsider this question. A new step in advance after the Act of 1931 had been the federation of the nursing associations, which was an

excellent innovation. He referred to the provision of telephones in doctors' and nurses' houses, and indeed in the local post office. Hitherto, when the service of a doctor had been required on the island of Soay, it had been necessary to despatch a boat to Glenbrittle, about one and a half hours' sail, and on landing to travel nine miles by road to Carbost. Now, however, there was a telephone in the post office at Glenbrittle, so that the time spent on the road journey would be saved. The Department had power to make a certain grant from the funds at their disposal in cases of that kind where the demand of the post office could not be met locally.

Mr. MCGOVERN suggested that in Glasgow a hospital to cost £750,000 had been contemplated which would not have been needed if a larger number of people suffering from slight diseases lived in better houses and could be treated properly at home. He considered that the medical officer of health ought to condemn insanitary houses, and the Department of Health and the local authority ought to supply the better houses that were required.

Mr. LEONARD also called attention to the bad housing condition in Glasgow.

Mr. MACQUISTEN urged the need for the provision of houses for the medical officers and surgeons in remote places. The healing of the soul and of the body were supplementary to each other, and they should combine the offices of the medical man and the clergyman, as had been done with great success in Africa. The medical man after qualification could follow up his course with probably 12 months in a divinity hall which would provide him with all he needed to practise a combined profession.

Mr. R. W. SMITH said he wished to point out a rather extraordinary discrepancy in regard to maternal mortality. The Minister claimed that maternal mortality last year was 6·9 and this year 5·9. As a matter of fact the report of the Department of Health showed that last year it was 7·0, so that they could claim more than Mr. Skelton had indicated. Everyone was thankful to see this improvement, but there was one rather disquieting feature with regard to deaths of women from puerperal sepsis. In the report this year it was stated that there were 544 deaths of women from diseases of pregnancy, while last year in the same period there were 661 deaths from the same cause. Of this number 221 were due to puerperal sepsis, a very infectious disease, or one-third of the total. This year one would have expected the number of deaths from puerperal sepsis to have dropped to a certain extent. It should have dropped by one-third, which would have brought it down to 181 instead of 207. He suggested that the causes of these deaths should be investigated. There was no doubt that with improved hygiene the number should be reduced. He thought that it would be found that this disease occurred in institutions rather than in houses.

Mr. BUCHANAN moved the reduction of the vote by £100, in order to record his opinion against the economy mania which was spreading.

After further debate,

Mr. SKELTON, replying to the debate, said that they all knew the valuable work which was being done by the grant to the Highlands and Islands Medical Service. Out of the economy of £4000 shown in the Estimate £3500 had been effected as a result of savings made last year, so that the economy secured by an actual cutting down of this valuable work was only £500. He had the matter of rural telephones in mind, as well as that of the provision of adequate housing for medical officers and surgeons in the Highlands. He would take into careful consideration what Mr. Macpherson had said on these matters. He would look carefully into the question of puerperal sepsis. It was a matter of some satisfaction that with the general decline of maternal mortality there had been a decline in puerperal sepsis. The situation, he thought, was not so serious as Mr. Smith would have the Committee suppose. With regard to statistics, the figures which were classified under the head of "poor houses" included institutions which were of a very different character, but the figures in their present form were not useless because they were of value in calculating chargeability to public assistance authorities. He thought, however, that there was something in the point that the tables might be made more informative, and the Department had been able to make arrangements whereby in future years more information would be given.

The motion to reduce the vote was negatived by 133 votes to 28.

Bills Advanced

In the House of Lords on Wednesday, June 22nd, the National Health Insurance and Contributory Pensions Bill was introduced and read a first time. On Thursday the Earl of Lucan presented the Extradition Bill, which includes offences in relation to dangerous drugs among extradition crimes. The Bill was read a first time. The Children and Young Persons Bill passed through the Report stage.

The Patent and Designs Bill was agreed to on Report in the House of Commons on Friday, June 24th.

Extradition Bill

In the House of Lords on Monday, June 27th, the Earl of LUCAN moved the second reading of the Extradition Bill, the primary object of which, he said, was to enable the British Government to ratify a new extradition treaty concluded with the United States of America. This Bill was to deal with offences in relation to the importation of dangerous drugs. The Bill proposed that "The Extradition Act, 1870, shall be construed as if offences against any enactment for the time being in force relating to dangerous drugs, and attempts to commit such offences, were included in the list of crimes in the First Schedule to that Act." The Bill was practically a one-clause measure.

The Bill was read a second time.

Children and Young Persons Bill

The Children and Young Persons Bill was read the third time in the House of Lords on Tuesday, June 28th.

HOUSE OF COMMONS

WEDNESDAY, JUNE 22ND

Unemployed Relief and Free Meals to Necessitous Children

Mr. THORNE asked the Minister of Health whether he had issued any instructions to public assistance committees regarding the reduction of equivalent amounts from the relief payments to unemployed parents in cases where the public education authority decided to supply free meals to necessitous children.—Mr. ERNEST BROWN, Parliamentary Secretary to the Ministry of Health, replied: The attention of public assistance authorities has been drawn in general terms to the necessity of taking into account, in assessing the amount of relief to be afforded, income and means from every source available to the household (subject to certain statutory exceptions), but no general instructions dealing specifically with the point raised by the hon. Member have been issued.

Children and the Schick Test

Mr. GROVES asked the Minister of Health whether his attention had been drawn to the fact that children in the Stifford and Gray's children's homes had been Schick-tested and inoculated against diphtheria; whether the consent of the parents of such children as had parents had been obtained; and, if not, if he would give instructions that no child was to receive this treatment without the previous consent of its parents.—Sir E. HILTON YOUNG replied: I am informed that the children referred to have undergone this test, but that the L.C.C. are seeking the consent of the parents before undertaking their immunisation.

THURSDAY, JUNE 23RD

Treatment of Incurable Disease

Mr. PRICE asked the Minister of Health whether he had any information as to the number of grant-aided institutions for the treatment of persons suffering from incurable disease in England and Wales, the number of persons now in these

institutions, and the total number of beds available; and whether any public assistance committees had special institutions for the care of incurable patients, either on a paying or non-paying basis.—Sir E. HILTON YOUNG replied: I would remind the hon. Member that direct grants are no longer paid from the Exchequer towards the cost of maintaining institutions for the treatment of disease. Apart from that point, I am not aware of any institutions which are provided by local authorities, through their public assistance committees or otherwise, for the treatment of incurable disease, except perhaps certain institutions for mental defectives. If the hon. Member desires information as to these latter institutions, perhaps he will let me know.

Relief from Public Assistance

Mr. MANDER asked the Minister of Health in respect of Wolverhampton and Staffordshire, the number of persons in receipt of relief from public assistance committees in December and up to the last available date.—Sir E. HILTON YOUNG replied: The numbers of persons (men, women, and children) in receipt of poor-relief (excluding rate-aided patients in mental hospitals, casuals, and persons in receipt of domiciliary medical relief only) in the geographical county of Staffordshire (including the county boroughs of Burton-upon-Trent, Smethwick, Stoke-on-Trent, Walsall, West Bromwich, and Wolverhampton) on Saturday, Dec. 26th, 1931, and on Saturday, June 11th, 1932, were 31,556 and 35,063 respectively. The corresponding figures for the county borough of Wolverhampton (included above) were 2512 and 2584.

MONDAY, JUNE 27TH

Medical Attention for Women Prisoners in India

Miss RATHBONE asked the Secretary of State for India whether there was any regulation in force in Indian prisons requiring that women political prisoners, whose condition required it and who objected to attendance by a male doctor, should be permitted to see a female doctor, whether at the public expense or their own; and whether all women prisoners affected by this regulation were allowed to make use of it.—Sir S. HOARE replied: I am not aware of any regulation in India entitling a female prisoner to demand to be examined by a lady doctor, but I have no doubt that every effort would be made to meet any reasonable request of this kind.

TUESDAY, JUNE 28TH.

Workmen's Compensation to Colliery Workers

Mr. TINKER asked the Home Secretary how many colliery companies had failed to meet their liabilities under the Workmen's Compensation Act since 1926; if he would give the total number of men affected; and also similar figures for Lancashire.—Mr. STANLEY replied: Inquiries made into colliery liquidations since Jan. 1st, 1927, have disclosed 12 cases in which there has been or is certain to be a permanent loss of compensation affecting about 390 workmen altogether. These include two Lancashire cases affecting 63 men. In addition, there are 11 cases, affecting possibly 500 to 600 men, where the position is still uncertain. These include two Lancashire collieries and affect about 160 men. I have no information as to cases before 1927.

MEDICAL NEWS

University of Cambridge

At recent examinations the following candidates were successful:—

THIRD EXAMINATION FOR M.B., B.CHIR.

Part I.: Surgery, Midwifery, and Gynæcology.—A. D. Aveling, S. E. Birdsall, C. P. F. Boulden, A. Bowen-Davies, E. J. M. Bowlby, H. W. L. Broadbent, C. C. Bryson, J. Cann, C. M. Carr, C. A. Clarke, J. W. Cope, W. D. Dick, P. M. Dobbs, J. C. Drury, W. Dykes Bower, R. H. Foster, K. H. Gaskell, D. W. C. Gawne, W. G. Gill, J. N. Groves, J. B. Harman, J. L. Jekyll, H. B. D. Kettlewell, N. Langdon-Down, A. B. MacEwan, M. H. Masina, G. A. Miller, T. D. F. Money, C. C. Morgans, B. C. Murless, R. W. Nevin, G. F. O'Connor, R. O. Parkes, E. B. Pawson, R. V. Payne, R. G. Pulvertaft, J. P. Reidy, A. C. Rumsey, F. W. Shepherd, S. M. Silverstone, P. M. Smyth, G. V. Steward, S. K. K. Sze, G. W. Thomas, H. R. Thompson, T. M. Tyrrell, J. M. Vaisey, J. G. Warren, and G. A. W. Whitfield.

Part II.: Physic, Pathology, and Pharmacology.—A. R. Adderley, F. K. Boston, J. W. Bromley, E. G. Byrde, D. B. Cater, H. M. Chappel, J. W. Cope, G. W. Crimmin, A. M. Cunningham, E. J. Currant, T. D. Day, K. V. Earle, W. O. M. Ede, C. D. Evans, J. H. Fisher, W. H. Gabb, T. C. Gipson, C. S. Hall-Smith, J. B. Harman, A. S. Herington, E. Hinden, B. Holden, P. W. Hutton, S. S. Jalkaran, N. D. Jekyll, W. H. G. Jessop, R. A. Jones, B. F. Longbotham, A. N. McCrea, A. B. MacEwan, G. C. Martin, G. J. Meikle, R. V. F. Mercer, J. Metcalf, W. H. Mylechreest, A. M. Naish, R. W. Nevin, S. H. B. Platts, F. Radcliffe, R. A. Ratcliff, I. C. Robertson, M. L. Rosenheim, B. Rothery, J. L. S. Scott, S. M. Silverstone, P. M. Smyth, G. V. Steward, A. C. Taylor, H. R. Thompson, G. M. Tickler, O. S. Tubbs, J. T. Turner, J. M. Vaisey, J. L. Wild, G. Williams, C. E. R. Wood, and A. H. Zair.

University of London

At a meeting of the Senate on June 22nd Mr. J. L. S. Hatton, principal of East London College, was elected vice-chancellor for 1932–33 in succession to the Rev. J. Scott Lidgett, whose term of office expires on August 31st. Sir Ernest Graham-Little, F.R.C.P., M.P., was reappointed a member of the Court.

Dr. D. T. Harris, who since 1921 has been assistant professor in the Institute of Physiology at University College, was appointed to the University chair of physiology tenable at London Hospital Medical College in succession to Prof. H. E. Roaf. Dr. Harris is a graduate in medicine of the Universities of London and Manchester.

The title of University Reader in histology was conferred on Miss Evelyn Hewer, D.Sc., at present lecturer in that subject at the London (R.F.H.) School of Medicine for Women.

A University post-graduate travelling studentship has been awarded to Muriel Hilary Eileen Long, M.B. It will be held for one year, and Miss Long will study surgery and its practice in Vienna, Cologne, Berlin, and Budapest.

Society for Psychical Research

In connexion with the jubilee of this Society a lecture will be delivered by Dr. William Brown, Wilde lecturer in mental philosophy in the University of Oxford, at 8.30 P.M., on Monday, July 4th, in the Conway Hall, Red Lion-square, W.C. His subject will be Psychology and Psychical Research.

Royal Medico-Psychological Association

The ninety-first annual meeting of this association will be held at Stirling from July 13th to 16th, under the presidency of Dr. R. B. Campbell, who will deliver an address on the Development of the Care of the Insane in Scotland. The general secretary is Dr. R. Worth, of Springfield Mental Hospital, near Tooting, London, S.W.17.

Acetyldihydrocodeinone

The Home Secretary announces that in accordance with a recommendation of the Health Committee of the League of Nations, an Order in Council has been issued under Section 8 (2) of the Dangerous Drugs Act, 1920, extending Part III. of that Act, which provides for the control of morphine, heroin, and cocaine, to acetyldihydrocodeinone, its salts, and any preparation, admixture, extract, or other substance containing any proportion of acetyldihydrocodeinone. The effect of the Order is that this drug (the trade name for which is Acedicone) may not be imported into or exported from the United Kingdom and Northern Ireland without a licence issued by the Secretary of State under the Dangerous Drugs Acts, and, as regards internal control, the Dangerous Drugs (Consolidation) Regulations, 1928, will apply. Acedicone is not manufactured in this country.

Royal Sanitary Institute Congress

The 43rd congress of this Institute will be held at Brighton from July 9th to 16th, under the presidency of Lord Leconfield, Lord-Lieutenant of Sussex. The lecture to the congress will be given by Dr. C-E. A. Winslow, professor of public health of Yale University, on Wednesday evening, July 13th, on Current Tendencies in American Public Health. In the section of preventive medicine, presided over by Sir Francis Fremantle, the subjects to be discussed are the Work of Local Authorities relative to Cancer; the Prevention of Measles; and Vaccination. Among the speakers will be Mr. J. P. Lockhart-Mummery, Dr. J. A. H. Brincker, Dr. Matthew Burn, Prof. J. C. G. Ledingham, Dr. C. Killick Millard, and Dr. Duncan Forbes. Sir Thomas Horder, Mr. Harold Chapple, and Dr. Lilias M. Jeffries will contribute to the proceedings of the section of maternity, child welfare, and school nurse's work. The section on food and nutrition will be presided over by Dr. Thomas Carnwath, of the Ministry of Health, and the speakers will include Prof. V. H. Mottram, Prof. S. J. Cowell, Miss Harriette Chick, and Miss Margaret Hume. The section of hygiene in industry will discuss Illumination in Industry and Vision in Industry; the section on veterinary hygiene, the Supervision and Control of Milk-producing Animals; and the section of national health insurance, the Medical Treatment of the Sick Poor, and Administrative Problems in Health Insurance. Among further subjects to be considered in conference meetings are the Manufacture and Sale of Ice-cream; Nursing Training; the Teaching of Hygiene and Mothercraft in Schools; Health Conditions in Underground Offices; the Slum Problem; and Milk Pasteurisation.

The National Institute of Child Psychology

A course of eight lectures on Some Problems of Childhood is being held at Friends House, Euston-road, N.W.1, on Mondays at 6.15 and 8.15 P.M. They are primarily intended for medical practitioners, educationists, and social workers, but will be of interest to others concerned with the care of children. Application for tickets should be made to the Lecture Secretary of the Institute, 20, Warwick-crescent, W.2.

Order of St. John of Jerusalem

The King has sanctioned the following promotions in and appointments to the Venerable Order of the Hospital of St. John of Jerusalem:—*As Commander:* Dr. W. Stewart, Dr. A. R. McLeod, Sir John W. Thomson-Walker. *As Officer:* Dr. F. C. Bottomley, Dr. H. G. Webster, Dr. J. H. Terry, Sir Arthur S. Woodwark, Capt. R. Williams, Dr. R. N. Ironside. *As Associate Officer:* Rao Sahib Dr. Doulatram Gopaldas Advani. *As Serving Brother:* Dr. S. L. Dawkins, Dr. T. C. A. Sweetnam, Dr. H. V. Morlock, Dr. C. G. H. Morse, Dr. T. Scoresby-Jackson, and Dr. R. J. Warrington.

Relics of William Harvey

An exhibition illustrating local history is being held in the Folkestone public art gallery for a month from July 12th. Prominent among the exhibits will be memorials of Dr. William Harvey, described as "Folkestone's greatest son." The Royal College of Physicians, the Royal Society of Medicine, and the Wellcome Historical Medical Museum are among contributors to this section, and Mr. F. J. Cooper, the librarian, informs us that the loan of relics of Harvey from other sources would be appreciated. He may be addressed at the public library, Grace Hill, Folkestone.

Rebuilding of Queen Charlotte's Maternity Hospital

Lady Howard de Walden and Mrs. Edward Baron gave a dinner at the Savoy Hotel, London, on June 27th, in support of the rebuilding fund of this hospital. Princess Helena Victoria and Princess Marie Louise were present, and Lady Howard de Walden presided. Dr. T. Watts Eden, president of the Royal Society of Medicine, said that the completion of the first stage of the plans for the re-erection of the hospital could now be recorded. The isolation hospital for the treatment of puerperal fever and the research laboratories were completed and paid for, and as a result of the first year's working it was becoming clear that they would be nearly, if not quite, self-supporting. It had been possible to open the laboratories free of debt because of a gift of £20,000 from the Bernhard Baron trustees, and in gratitude they had been named the Bernhard Baron memorial research laboratories. A grant of 105,000 dollars from the Rockefeller Trust, announced a year ago, was to be applied to the maintenance of the research laboratories over a period of seven years, and a grant had also been made to them by the Medical Research Council. During the last five years no less than £206,547 had been received from the public, and he regarded this as a proof of confidence and also as a tribute to the skill and ingenuity of the appeal department. Having now secured a unique hospital for the observation and treatment of puerperal infection, with a research laboratory, Queen Charlotte's proposed to go a step further and ask for another £150,000 in order that it might get on with the second stage of the programme. The present hospital building in Marylebone-road was not very old and not very dilapidated, but as a lying-in hospital it was a hopeless anachronism. It was incapable of expansion, it could not be remodelled, and it was nearly always overcrowded. A new hospital was wanted. Queen Charlotte's was a great educational institution; during the last five years it had trained entirely something like 500 nurses, maternity nurses, and midwives, and had taken a very considerable share in the training of over 700 medical pupils. This represented another aspect of the attack upon maternal mortality. If the level of obstetric skill and experience of the general body of practising nurses and doctors could be raised at a stroke, an enormous impression would no doubt be made upon the maternal mortality-rate, but the difficulties attaching to this subject were very grave. Midwifery could not be taught in the lecture-room; it must be taught at the bedside, in the bedroom; in privacy, restraint, and gentleness—under different conditions for that teaching than any other subject of medicine whatsoever. Under modern conditions far more could be done at Queen Charlotte's: "We could turn out men and women whose work would be immeasurably better than that of their fellows, and if this were done generally all over the country the effect upon maternal mortality would be immediate and striking." Lord Riddell and Mr. S. P. B. Mais warmly supported the appeal, and at the end of the dinner Lady Howard de Walden announced donations totalling £8200, including £6000 from Mr. Anthony de Rothschild, on behalf of the executors of the late Mr. Alfred de Rothschild.

Liverpool and Samaritan Hospital

Last week the Duchess of York, who was accompanied by the Duke, opened the new Liverpool and Samaritan Hospital. There are 130 beds, and 20 single bed wards have been set aside for private patients. The cost has been £150,000, of which some £25,000 has still to be raised. The new institution is an amalgamation of the Liverpool Hospital for Women, founded in 1841, and the Samaritan Hospital for Women, which dates from 1895. Between them the old hospitals had 81 beds; the new one has 134. The nurses' home has its own garden.

A New Orthopædic Workshop

The foundation-stone of a new workshop for the Bath and Wessex Children's Orthopædic Hospital at Combe Park, Bath, has been laid by a boy and a girl ex-patients, who are members of the workshop staff. An inscription plate attached to the stone records that the building is the gift of Captain Ronald Wills, the treasurer of the hospital. The existing workshop consists of one of the old huts that formerly belonged to the Pensions Hospital. For several years the manufacture of splints and appliances for the children's hospital has been carried on there, and now the work has increased so considerably that there is scope for the employment of many more ex-patients. Power machinery is to be installed.

Eye Wards at Addenbrooke's Hospital

Three new eye wards at Addenbrooke's Hospital, Cambridge, have been opened by Mrs. Arthur Cooke, the wife of the honorary surgeon. The wards, which form part of a large scheme of extension, have been converted from the old board and lecture rooms, contain 13 beds, and have their own theatre. Each ward is fitted with special dark blinds; they are lighted from the north. The chief electric lamps are fitted with dimmers for grading the light, and the bed lamps are shaded with delphinium blue and opal. It is expected that this new accommodation will abolish the waiting-list.

New Clinic at Worthing

On June 25th Sir George Newman, chief medical officer of the Ministry of Health and the Board of Education, opened a new maternity and child welfare centre and school clinic at Worthing. The clinic buildings form part of the large municipal buildings scheme in Chapel-road, but a separate entrance is provided. Sir George pointed out that Worthing was one of the first authorities in the country a quarter of a century ago to provide treatment for school-children needing it, and he congratulated the town on what it was doing in regard to municipal buildings, and particularly on the fact that its scheme included a clinic for antenatal care and the health of children. He declared that if the problems of motherhood and child life were solved the rest would take care of themselves. The clinic was provided to prepare the child to receive the education which the State provided; there were people who said it was extravagance to build a place like that when the nation was passing through bad times, but would they postpone provision of a fire brigade and the lifeboat on the same ground?

Housing and Juvenile Rheumatism

At the annual meeting of the Paddington Housing Council a resolution was passed asking the Minister of Health to call a conference of local authorities to consider overcrowding and unhealthy housing conditions. Mr. Brendon Bracken, M.P. for North Paddington, said the borough was becoming notorious for permitting the continuance of one of the worst exhibitions of slumdom in the country, and that no question of economy should stand in the way of effective treatment. Dr. Reginald Miller, physician to St. Mary's Hospital and Paddington Green Children's Hospital, said that slum dwellings and overcrowding were undoubtedly responsible for high infant mortality and death-rate from such diseases as acute rheumatism, scarlet fever, diphtheria, and tuberculosis. There was, however, another side to the problem of the housing of the poor—namely, the provision of small houses properly built and capable of being kept warm and dry. In his opinion, although he owned it was open to argument, much juvenile rheumatism was due to living in improperly built houses. His view was based on the known fact that to take the children out of their own homes and bring them up in such institutions as the poor-law boarding schools was sufficient to prevent the appearance of rheumatism among them. The type of child particularly prone to develop rheumatic heart disease was one of an artisan family living in a damp house in an industrial town, suffering from infected tonsils, and attending an elementary school under compulsion. He gladly acknowledged the support given by the Paddington borough council authorities to the work amongst rheumatic children which was being carried out in the area.

Appointments

BUCHANAN, J. V., M.B., Ch.B. Edin., has been appointed Medical Officer of Health, Horncastle Rural District.

HINDENACH, J. C. R., M.D., Ch.B. (N.Z.), Resident Medical Officer, Freemasons Hospital, Fulham-road, S.W.

LOBBAN, J. W., M.D. Aberd., Medical Officer of Health, Chester.

MACNIVEN, A., M.B., Ch.B. Glasg., Physician-Superintendent, Glasgow Royal Mental Hospital.

THOMAS, J. W. TUDOR, M.D., M.S. Lond., F.R.C.S., Honorary Ophthalmic Surgeon to the Cardiff Royal Infirmary.

City of London Maternity Hospital: WYNNE-WILLIAMS, N., M.B., B.S. Lond., Senior Resident Medical Officer, and LANNAMAN, L. J., L.R.C.P. Lond., M.R.C.S., Asst. Resident Medical Officer.

Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.: STEPHEN, R. A., M.B., Ch.B. Aberd., Senior Resident Medical Officer; SCOTT, J. M., M.B., B.S., Asst. Resident Medical Officer; EVANS, Miss MARY, M.B., B.Ch., and GARRY, Miss HILDA M., M.B., Ch.B., Resident Anæsthetists.

Certifying Surgeons under the Factory and Workshop Acts: BEVAN, F. A., M.B. B.S. Lond. (Woodstock): WILKINSON, J., M.D. Edin. (Droitwich).

Vacancies

For further information refer to the advertisement columns.

All Saints' Hospital, Austral-street, West-square, S.E.—Two Hon. Anæsthetists.

Altrincham General Hospital.—Sen. and Jun. H.S. At rate of £150 and £120 respectively.

Ashford Hospital, Kent.—H.S. £150.

Association of Surgeons of Great Britain and Ireland.—Surgical Scholarship. £350.

Ayr County Hospital.—Two H.S.'s. Each £150.

Barrow-in-Furness, North Lonsdale Hospital.—Sen. H.S. and Cas. O. £200 and £150 respectively.

Beckenham, Kent, Bethlem Hospital, Monk's Orchard.—Res. H.P. At rate of £150.

Bedford County Hospital.—First and Second H.S. At rate of £165 and £140 respectively.

Birmingham University.—Walter Myers Travelling Scholarship. £300.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.P. At rate of £120.

Bournemouth, Royal Victoria and West Hants Hospital.—Hon. Asst. M.O. to Orthopædic Dept. Also Hon. Bacteriologist.

Brighton, Royal Sussex County Hospital.—Cas. H.S. £120.

Bristol General Hospital.—H.P.'s, H.S.'s, &c. At rate of £80 and £100 per annum respectively.

Bristol University.—Lecturer in Pharmacology in Physiology Dept. £400–£500.

Burnley, Victoria Hospital.—H.P. and H.S. Each at rate of £150

Bury Infirmary, Lancs.—Third H.S. At rate of £150.

Bury St. Edmunds, West Suffolk General Hospital.—Sen. Res. M.O. £180.

Buxton, Derbyshire, Devonshire Hospital.—Asst. H.P. At rate of £175.

Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist, &c. At rate of £130.

Central London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.—Sen. and Jun. H.S.'s. At rate of £120 and £100.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. At rate of £75.

Colchester, Essex County Hospital.—H.P. and Asst. H.S. £150 and £120 respectively.

Coventry and Warwickshire Hospital.—Hon. Aural Surg.

Coventry City.—Asst. School M.O., &c. £500.

Doncaster Royal Infirmary.—Cas. H.S. At rate of £175.

Elizabeth Garrett Anderson Hospital, Euston-road.—Obstet. Asst. At rate of £50.

Exeter, Royal Devon and Exeter Hospital.—H.P. and H.S. Each at rate of £150.

Fareham, Hants, Knowle Mental Hospital.—Third and Fourth Asst. M.O.'s. Each £350.

Freemasons Hospital and Nursing Home, 237, Fulham-road, S.W. Anæsthetist.

Guildford, Royal Surrey County Hospital.—H.S. £150.

Halifax Royal Infirmary.—Third H.S. At rate of £150.

Hospital for Consumption and Diseases of Chest, Brompton, S.W.—H.P. £50 for six months.

Hull Royal Infirmary.—Res. Cas. O. £200. Third H.S. £150. Also H.P. at Sutton Branch. £160.

King Edward Memorial Hospital, Ealing.—Two Jun. H.S.'s. Each £150.

King George Hospital, Ilford.—H.S. At rate of £100.

Leeds Hospital for Women.—H.S. At rate of £100.

Leicester City Isolation Hospital and Sanatorium, Groby-road. Jun. Asst. M.O. £300.

Leicester Royal Infirmary.—Second Cas. H.S. At rate of £100.

Leicestershire County Council Sanatorium and Infectious Diseases Hospital, Markfield.—Asst. Res. M.O. £400.

Lewisham Hospital, High-street, S.E.—Asst. M.O. £350.

Lincoln County Hospital.—Jun. H.S. At rate of £150.

Liverpool, David Lewis Northern Hospital.—Four H.S.'s. and Two H.P.'s. Each at rate of £100.

Liverpool, University of Liverpool Clinical School.—Two Surg. Tutors and Regs. Also One Med. Tutor and Reg. Each £175.

London Fever Hospital.—Secretary. £450.

London Homœopathic Hospital, Great Ormond-street, Bloomsbury, W.C.—Res. M.O. £100.

Macclesfield General Infirmary.—Res. M.O. At rate of £180.

Manchester, St. Mary's Hospitals.—Two H.S.'s. for Whitworth-street West, and two for Whitworth Park. All at rate of £50.

Margate and District General Hospital.—Res M.O. £150.

Middlesbrough, North Ormesby Hospital.—H.P. and H.S. At rate of £120 and £135 respectively.

Miller General Hospital.—Cas. O. At rate of £150.

Northampton, Crealon Sanatorium.—Med. Supt. £600.

North Middlesex County Hospital.—Jun. Res. Asst. M.O. £250.

Norwich, Norfolk and Norwich Hospital.—Cas. O. and H.S. £120.

Plymouth City Hospital.—Res. M.O. £350.

Queen's Hospital for Children, Hackney-road, E.—H.S. and Cas. O Each at rate of £100.

Reading, Royal Berkshire Hospital.—Cas. O. £150.

Rotherham Hospital.—Cas. H.S. £150.

Royal College of Physicians, Pall Mall, S.W.—Two Leverhulme Research Scholarships. Each £500.

Royal Northern Hospital, Holloway, N.—H.P. At rate of £70.

St. John's Hospital, Lewisham, S.E.—Res. H.S., Cas. O. and H.P. Each £100.

St. Stephen's Hospital, Fulham-road, S.W.—Asst. M.O. £250.

Salford, Hope Hospital, Pendleton.—Asst. Res. M.O. At rate of £250.

Salford Royal Hospital.—Cas. H.S. At rate of £125.

Salvation Army, Mothers' Hospital, Lower Clapton-road, E.—Jun. Res. M.O. At rate of £60.

Scottish Branch British Red Cross Society.—Secretary.

Sheffield Children's Hospital.—Res. M.O. £175. Also H.P. and H.S. Each at rate of £100.

Sheffield Royal Infirmary.—Aural H.S. £80–£100. Also H.S. At rate of £80.

Southampton Children's Hospital and Dispensary for Women.—Res. M.O. At rate of £150.

Southampton, Royal South Hants and Southampton Hospital.—Cas. O. At rate of £150.

Southern Rhodesia Medical Service.—Two Government M.O.'s. Each £500.

Stockport Infirmary.—Jun. Res. Surg. £150.

Stoke-on-Trent Orthopædic Hospital.—H.S. £150.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S. for Ophth. and Aural Depts. At rate of £150.

Swansea General and Eye Hospital.—Cas. O. £200.

Tilbury Hospital, Essex.—H.S. At rate of £150.

Walsall General Hospital.—H.S. At rate of £150.

Westminster Hospital, Broad Sanctuary, S.W.—Wander Scholar. Reg. and Clin. Pathologist to Children's Dept. £250.

Whitechapel Clinic, Turner-street, E.—Clin. Asst. At rate of £150.

Windsor, King Edward VII Hospital.—H.S. At rate of £100.

Wolverhampton Royal Hospital.—H.S. At rate of £100.

Worcester General Infirmary.—Second and Third Res. M.O.'s. £150 and £120 respectively.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Horsmonden (Kent).

Births, Marriages, and Deaths

BIRTHS.

BESLEY.—On June 26th, at the Royal Naval Hospital, Portland, the wife of Surg.-Lieut. F. W. Besley, R.N., of a daughter.

HARDWICK.—On June 21st, at Island House, Newquay, the wife of A. G. P. Hardwick, M.C., M.R.C.S., L.R.C.P., of a son.

MARRIAGES.

BUNCOMBE—RICHARDS.—On June 18th, at St. Stephen's Church, Norwich, Guy Hope Buncombe, M.R.C.S., L.R.C.P., to Grace Ellen, daughter of the late Mr. and Mrs. Philip Richards, of East Harling, Norfolk.

DEATHS.

BIDEN.—On June 21st, at Hyères, France, William Price Biden, M.R.C.S., L.R.C.P. Edin., aged 77 years.

FOX-SYMONS.—On June 26th, suddenly, at a nursing home in London, Sir Robert Fox-Symons, K.B.E., aged 62.

HARDY.—On June 18th, William George Hardy, M.B., C.M. Edin., of West Chevin, Bournemouth.

JONES.—On June 21st, after a short illness, at "Glyn-Cerrig," Mumbles, Swansea, Dr. Arthur Lloyd Jones, in his 80th year.

ROWLANDS.—On June 22nd, peacefully, at a nursing home, following a short illness, Moses John Rowlands, M.D., of Ewhurst, Surrey, and Knightsbridge-court, S.W.

SLAUGHTER.—On June 27th, at Middlesex Hospital, Surg.-Commander John Walter Slaughter, M.B., B.Ch., R.N. (retd.), aged 69 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

MEMORIAL TO DR. ETHEL BENTHAM. — The Rev. F. L. Donaldson, canon of Westminster, last week dedicated a new surgical ward of the Margaret MacDonald and Mary Middleton Baby Clinic and Hospital, Ladbroke-square, W., in memory of the late Dr. Ethel Bentham, M.P. for Islington. The clinic, which accommodates 35 babies, since its removal to its present quarters has treated 682 patients, 90 per cent. of whom have been discharged cured.

NOTES, COMMENTS, AND ABSTRACTS

A MEMORY REGAINED

SCARCELY a day passes without the record by the daily press of a case of loss of memory. The war with its emotional stresses yielded a rich harvest of such cases, some of which were labelled "shell-shock" while others less fortunate were court-martialled. Where psychotherapeutic treatment was available, many such cases were rightly described as "fugues." Abreaction or emotional re-living of past experiences restored mental continuity; that is to say, the unearthing of emotional conflicts which have led to transitory splitting of personality led to restoration of mental health. Many psychoneurotics to-day realise the lacunæ in their war experiences only when they arrive for treatment. Such lacunæ may be dealt with in their own right, as it were, but a rational psychotherapy attempts to deal with such repressed memories as part of a generalised psychic disturbance. An account of his experiences has recently been published [1] by one who was a soldier in the war, but who lost his memory—his identity, to be more accurate, many years after when the stresses in his life were becoming unbearable. He realised his loss of identity at the end of a fugue state which found him witnessing army manœuvres at Aldershot to which he had wandered, far from his home. With the help of a doctor and of his wife he submitted to a series of reaction-time experiments and gave himself up to periods of free association, and dream analysis. These processes gradually and painfully restored an amnesia of many years, including the whole period of his war service. He realised during this period of mental reintegration the obstinate opposition of what he called the "repressor" which constantly intervened to shut out from awareness the painful experiences which had been forgotten. What this repressive force was he never succeeded in discovering, nor does he make clear to us the psychic forces which induced the sudden appearance of the fugue state. While, as a result of patient efforts, his mental continuity was restored, the motive of the disturbance and of the mechanisms in the mental life of a highly sensitive and obviously neurotic subject never seems to have been discovered. Psychotherapeutically, the result was satisfactory to the patient in so far as the void produced by the submerged memories was filled up. But psychopathologists will doubt the radical nature of a cure which does not appear to have reintegrated a personality riven by an unknown repressor. Such a mythical figure needs further analysis, because it contains within its structure those regulative principles which, while acting as guardians of man's emotional life, are instrumental in producing some of its gravest disturbances.

Though this work adds nothing new to psychopathology, it provides very good reading, especially the passages describing the reaction of this Rip Van Winkle to a world which had undergone 20 years of social and material changes.

ETHER DROPPER AND MASK

IT is late in the day to expect any improvement in the technique of open ether administration, and yet we believe there are distinct advantages in some respects to be found in the recently introduced Braun's dropper and mask that are not to be met in those appurtenances as usually provided. The distinguishing features of the mask, which is in other respects of the usual Schimmelbusch pattern, are a covering over the absorbent surface and a small funnel which fits into a hole in the top of the metal frame. Into this funnel the ether is dropped, and permeates the absorbing material under the cover. The long limb of the dropper has a sharp point which enables it to pierce a cork, and so any bottle of ether can be used without drawing the cork. An arrangement in the head of the dropper allows it to be turned off so that when not in use no ether need be lost by evaporation. This dropper and mask are very convenient and efficient, the only drawback arising when the patient's face is turned fully to one side. Then it is not easy to drop the ether squarely down the funnel. The dropper gives an excellent interrupted flow; it really does drop the ether, not pour it.

The mask and dropper are to be obtained from Messrs. F. Davidson and Co., 143, Great Portland-street, London, W.

GROUP TEST FOR COLOUR BLINDNESS [1]

A TIME-SAVING device for discovering the colour-blind individuals in any class of children not exceeding 12 has recently been prepared for the Scottish Council for Research in Education. It is founded on Stilling's isochromatic test, and consists in a coloured cross hatch with the letter E in shades of green on a background of orange, purple, and brown. Any child who fails easily to copy the E in the position in which it is placed by the teacher is examined individually. The chart might easily be used to test motorists for colour blindness.

ULTRA-VIOLET RADIATORS

SEVERAL methods have been devised for comparing the therapeutic value of the various sources of ultra-violet rays in common use. Light and ultra-violet rays are capable, however, of producing a number of different biological effects, and a considerable body of evidence shows that to produce any one of these effects some rays are more suitable than others. Moreover, rays which are most suitable for producing one type of reaction, for example erythema, are generally of different wave-length from those most suitable for producing other types, for example, pigmentation or bactericidal effects. Thus the term therapeutic value applied to a light source is a loose one, unless the biological effect which that source of light is required to produce is also indicated.

Recently, A. van Wijk and E. H. Reerink, of the Physical Laboratory of Messrs. Philips Lamps Ltd. at Einthoven, have put forward an interesting method of comparing the serviceability of different light sources in the therapy of rickets. Their method is based on the assumption that in the ultra-violet treatment of rickets, the beneficial effect of the rays is due to the conversion of the ergosterol in the skin into vitamin D. A comparison of the antirachitic values of different sources is therefore tantamount to comparing the vitamin-D-forming values. In this method, use is made of the fact that the absorption spectrum of ergosterol undergoes marked changes when this substance is irradiated with ultra-violet light, and the amount of vitamin D formed as a result of irradiation may be determined from these spectroscopic changes. The indications of the antirachitic effect of the radiation from different light sources afforded by this method are at variance with the data given by the photo-electric method, which is being widely used for measuring the general therapeutic effect of these rays. It is evident, therefore, that caution is needed when considering the relative efficiency of different radiators. The method suggested by van Wijk and Reerink would appear to be a step in the right direction.

Recent research in the photochemistry of vitamins has revealed the advantages of irradiation by monochromatic beams of light, and it may be that such beams will find a practical application in light therapy. The sources of light commonly available at the present time, however, generally emit very heterogeneous radiation capable of stimulating a variety of biological reactions. The assessment of the therapeutic efficiency of ultra-violet radiators remains an extremely complex problem.

[1] I Lost My Memory: The Case as the Patient Saw It. London: Faber and Faber. 1932. Pp. 305. 7s. 6d.

[1] By Dr. Mary Collins and Prof. James Drever, University of Edinburgh. Lithographed by Mr. C. C. Parkinson. London: University of London Press, Ltd. 1932. 10s. 6d.

A THEORY OF THE FORMATION OF ANIMALS [1]

THE theory put forward by Dr. Hillier to account for the formation of animals includes some matters hard to resolve. Having read the book one still has only a vague notion of the nature of the "dual constitution" which he postulates for the animal body. A remark on p. 4 seemed to suggest that it might be something reminiscent of the constitution of the pantomime donkey, but such a crude image became untenable in face of the idea of a "phantom blastula." This conception, holding to the presence in the individual of half-materialised ghosts, so to say, of the outcomes of separate parental individualities, is one which Dr. Hillier handles with much ingenuity in accounting for the cellular development of polygordius—in which, for some reason not made clear, four of these phantom blastulæ are adopted. It is all hypothesis built upon hypothesis, but is not necessarily false on this account if not evidently true. It is certainly a way of looking at the processes of development, although an intrinsic and hidden series of morphological changes such as would admit of being read in this way would hardly be in keeping with the implications of a purely mechanical diagram like that in Fig. 26. The author deals also with the herring as a type, giving the results of his labours in a detailed account of the anatomy, especially that of the skeletal system. He draws certain conclusions from the superficial appearances here, but leaves us guessing at the values he assigns to them as supporting his point of view. Dual constitution of the nucleus is, of course, at the bottom of all sexual development, and the cytoplasm, the material in which this nucleus works, is recognised as showing the results of the combination; but Dr. Hillier would apparently see more overt or distinct indications of the double nature of the product. The production of a perfect mature individual, sea urchin, or even frog, by artificial parthenogenesis, seems relevant to this question. The work is of interest in many ways, even if it is difficult at present to adopt the belief which the author supports so whole-heartedly.

INFRA-RED RADIATION

THE "Radiation" Clinical Gas Lamp is designed for use as a source of infra-red radiation. The gas is burnt in a bunsen flame which impinges on a pierced cone of special refractory material, the principle being the same as in a modern gas fire. The material of the cone is treated so as to produce a high proportion of radiation in the near infra-red region between the red end of the visible spectrum and wave-lengths of about 1 μ. These wave-lengths penetrate human tissue to a considerable depth, which permits the use of high intensities without risk of burning the skin unless the exposure is unduly prolonged. The burner is mounted in the centre of a concave reflector which produces a beam of radiation of small divergence, the intensity of which does not fall off rapidly with distance. The lamp is worth the real attention of practitioners who have not the advantages of an electrical supply.

HAPPINESS IS A MATTER OF PRACTICE

IN this, his latest, exposition of practical psychotherapy Dr. Rothe [2] indicates his impartiality by giving us, on the same page, photographs of Freud, Adler, and Coué. He applies all kinds of methods, except psycho-analysis, and the reader pictures him as a genial and successful stimulator of the emotionally ill. That he has a shrewd intuition appears from his comments upon the picture of two black infants eating watermelon. One is plainly, in Jungian terminology, an extravert and the other an introvert, and the author neatly, and probably accurately, prophesies their types of reaction in adult life. The book contains plenty of similar lively examples, and though the theories set forth are lacking in depth, the clinical descriptions are written from an extensive first-hand experience. Whether, as the title indicates, happiness is a matter of practice, is a doubtful thesis; but there is plenty of room for the application of short methods of psychotherapy, and the book will be helpful to those whose methods lie in encouragement, exhortation, and sufficient explanation to persuade the patient that the path to health is along the road of common sense.

[1] By W. T. Hillier, M.R.C.S., L.R.C.P. Bristol: John Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd. 1932. Pp. 166. 8s. 6d.

[2] Glück haben—Übungssache! Praktische Psychogymnastic. By Dr. med. Ernst Rothe: Facharzt für Psychotherapie in Berlin-Wilmersdorf. Berlin: Max Hesses Verlag. 1932. Pp. 446. R.M.8.50.

A PRESCRIPTION FOR ASTHMA

Dr. M. W. GEFFEN writes: "The value of hypodermic injection of adrenaline in terminating acute attacks of asthma has now been recognised for many years. Of late, the addition of pituitrin to adrenaline has been found useful, in the more severe cases, for prolonging the intervals between attacks. Still more recently, ampoules containing ephedrine with adrenaline have been similarly useful. Such ampoules are now being made by several manufacturers. Somewhat improved results with these last preparations suggested to me that further advantage might be obtained by combining all three remedies—viz., adrenaline, pituitrin, and ephedrine. Ampoules containing these three ingredients were prepared, but it was found that after a little while this combination became discoloured, perhaps through oxidation of the adrenaline. Ultimately, this difficulty was overcome by exhausting the air from the ampoules. The formula is as follows: ephedrine hydrochlor., gr. ½; liq. adrenalin. (1–1000), ℥ 5; pituitary extract, 0·5 c.cm.; distilled water to 1 c.cm.; in air-free ampoules. Of course variations in these doses might sometimes be useful; for example, a little more adrenaline might hasten the action. The limitations of private practice have not allowed full comparative results—as against the older formulæ—to be worked out. But my own experience has been decidedly promising, and the suggestion is put forward in the hope that trial by others will confirm the value of the formula. The ampoules were prepared for me by Messrs. May and Baker, Ltd., of Battersea, S.W."

PAPWORTH VILLAGE SETTLEMENT.—The Duke and Duchess of York will visit Papworth on July 8th, when the Duchess will inaugurate the new hospital for women.

Medical Diary

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, July 4th, to SATURDAY, July 9th.—PRINCE OF WALES'S HOSPITAL, Tottenham, N. Post-graduate course in general medicine, surgery, and the specialties. All day. Specially suitable for general practitioners. —ST. MARK'S HOSPITAL FOR DISEASES OF THE RECTUM, City-road, E.C. Post-graduate course in Proctology. All day.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, W.C. Special demonstration of Fundi of Medical Interest by Mr. G. G. Penman, on Wed. at 5 P.M. Special lecture (illustrated by epidiascope) on Some Points in Medical Ophthalmology by Mr. C. L. Gimblett, on Thurs. at 8.30 P.M.—Both the lecture and the demonstration are specially intended for M.R.C.P. candidates.—(The above are open only to Members of the Fellowship of Medicine.)

ROYAL NORTHERN GROUP OF HOSPITALS.

WEDNESDAY, July 6th.—3.15 P.M. (at Royal Chest Hospital, City-road), Dr. H. B. Day: Immunity to Pneumococcus.

ST. PETER'S HOSPITAL, Henrietta-street, W.C.

WEDNESDAY, July 6th.—3 P.M., Mr. J. Swift Joly: Complications of Prostatectomy.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Balham, S.W.

WEDNESDAY, July 6th.—4 P.M., Dr. Stanley Wyard: Points in the Treatment of Renal Disease.

NATIONAL CENTRE AND POST-GRADUATE SCHOOL OF RADIOTHERAPY, Riding House-street, W.

WEDNESDAY, July 6th.—4.30 P.M., Mr. S. Cade: Pharynx and Œsophagus.